PRESENT AND FUTURE POSSIBILITIES FOR GENERAL PRACTICE IN INTER-TROPICAL AFRICA

A study based upon the records of a part-time private practice in Calabar, Nigeria

By

DR. N. M. B. DEAN
M.B., Ch.B., F.R.C.S.(Ed.). D.P.H., D.I.H.

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TABLE OF CONTENTS

INTRODUCTION

INCENTIVES

In the extensive literature concerning the development, present organisation and future of health services in countries of tropical and sub-tropical Africa, little mention has been made of the part which the private general practitioner could play as an integral part of these services. Maruwa,[1] in a wide-ranging paper on the development of national health programmes in underdeveloped countries with particular reference to Nigeria, does not mention the general practitioner. Sai[2] has little to say of him in relation to Ghana, while Gelfand,[3] discussing the pattern of ill-health in Tropical Africa, Fendall[4] and Kershaw,[5] writing on the organisation of medical services in East Africa, pay him similar scant attention.

In governmental, World Health Organisation, and other factual reports on medical services in individual African territories,[6,7,8,9,10] the omission of any useful note of the general practitioner's work is all the more noticeable when comparison is made with equivalent reports relating to economically developed countries.[11,12,13].

On the other hand, literature devoted specifically to the general practitioner, his functions, training and importance in the sphere of preventive medicine, is concerned primarily with countries where the G.P. is already a well-integrated unit of the respective national health services; little or no indication is given of how he could best fit into the medical and/or health services of countries in the developing stage.[14,15,16,17,18,19].

Thirdly, the records of the disease patterns in most, if not all, developing countries in Africa, are almost wholly based on in-patient

hospital statistics (Edge,[20] Trowell[21], Gelfand,[3] Bowesman[22]), and these are incomplete and unreliable for a variety of reasons, some of which will be referred to later. Records of the disease patterns found in general practice, or in hospital out-patients, are conspicuous by their absence. Very little, moreover, is known about the details of the work of the general practitioner. Yet 'the G.P. is in many respects well placed to provide morbidity statistics from his routine clinical note-taking. He sees most diseases at some stage or another, except for very minor conditions which do not cause disability. For the middle range of disease he is, indeed, the only person who can give reliable information, for many such diseases are rarely seen in hospital.' (Logan and Cushion).[23]

For these reasons it has seemed worth-while to present this admittedly parochial review of a part-time general practice in Calabar, a town in Eastern Nigeria. Further, in many African countries the numerical importance of general practitioners is likely to increase rapidly in the next decade. Consideration, based on the analysis of the records, has therefore been given to the possible present and future use of the general practitioner, especially in the sphere of preventive medicine. It may, as a result of this study, be possible to go at least some way towards answering such questions as:

"In a developing tropical country, what kind of work can a general practitioner do at present?"

"Is his skill used to the best advantage in those countries where the fullest possible use of a totally inadequate number of doctors is essential?"

And perhaps most fundamental of all:

"Can a developing country such as Nigeria, afford what may appear to some the luxury of uncontrolled and undirected general practice?"

In the end, however, it may well be that this study will pose more questions than it can answer.

"WHAT IS MEANT BY A GENERAL PRACTITIONER IN THE PRESENT CONTEXT?"

To those familiar only with European or American practice it might seem a work of supererogation to define a term which to them requires no definition. In Britain the general practitioner is variously described as "The Family Doctor"; the physician who does not limit his practice to certain disease entities, and who offers his patients direct and continuing access to his services;[24] and, most comprehensively, as "The patient's first line of defence in times of illness, disability and distress from birth to death..... the essential intermediary in the transmission of specialised skills to the individual..... the one member of the profession who can best mobilise and co-ordinate the health and welfare services in the interests of the individual in the community and of the community in relation to the individual.[25] His practice has been called the application of the science of medicine to the art of healing in all its aspects, and it involves the whole range of illness in mankind.

However applicable such descriptions may be in Britain - and dare one say that some parts of these definitions sometimes appear

to be expressions of hope rather than descriptions of reality? - they must be modified very considerably if they are to apply to general practice and the practitioner in Africa.

In Nigeria, as in most other ex-British African territories, the organised medical service has a bipartite structure, consisting of hospital service on the one hand and "health" service on the other. All grades of doctors belonging to these services are full-time salaried government servants. By far the larger of the two parts - that on which the bulk of the money is spent and in which more than 90% of the doctors work - is the hospital service.[26] This service is naturally largely curative in approach and outlook. The "health service", which corresponds to the Local Authority health service in this country, employs a very small number of full-time Medical Officers of Health. In Eastern Nigeria in 1953 there was one M.O.H. compared with 79 clinical and administrative doctors.[25] For the most part the "health service" has been maintained by a large staff of health inspectors under the very loose and unenthusiastic supervision of the nearest hospital doctor.

Outwith the Government services lie the mission and commercial medical activities. These are entirely hospital-based and have, until recently, been almost wholly curative. Both are subsidised by Government. The mission medical services consist for the most part of hospitals in rural areas and in the smaller towns. Gradual integration is taking place whereby some of the missions have recently been given responsibility for preventive services and environmental control in areas not adequately served by Government. So-called "commercial doctors" are employed by large plantations, or, in a few cases, by industrial firms or quasi-governmental corporations such as

the railways, and look after only the employees and their families.

General practitioners, working apart from all those organised bodies, are not only virtually completely uncontrolled, but, with a few exceptions which will be noted, receive no financial aid from government or any other body. There is no National Insurance or other similar scheme for their payment. They therefore differ from their colleagues in government, mission or plantation services, mainly in the fact that they are almost wholly dependent on fees from individual patients for their livelihood. For it must be understood that not only the G.P. but the majority of his hospital colleagues, whatever their title or appointment, have to deal with the whole range of human sickness both in diagnosis and treatment.

Further, unlike their British counterparts, Nigerian general practitioners cannot be "family doctors" with all the socio-medical implications of this term - there are too few of them in relation to the demand for their services. Save perhaps in respect of a few privileged families in his practice, the Nigerian practitioner cannot undertake the regular domiciliary treatment whereby he would come to know intimately, and to deal sympathetically with the many medical, social and psychological problems of each member of the family.(Cobban).[27]

Thirdly, the Nigerian practice is almost always a dispensing one. As has been stated, in the absence of a national insurance scheme, every service obtained from the general practitioner must be paid for by the patient himself, or by the doctor if he does not charge the

patient. There is however, no tradition in Nigeria of paying for the doctor's skill as such, except in regard to some surgical operations. There is therefore, no possibility of conducting an economically self-supporting practice if the doctor dispenses only advice and/or prescriptions. Even if the patients could be persuaded to accept prescriptions in lieu of actual medicines, in the present state of the pharmaceutical profession in the country such prescriptions would have considerably less value than they have in this country, and comparatively few would be presented for dispensing. Almost any private practice in Nigeria must therefore be a dispensing one, with all that this entails, the only exceptions being a few practices in the largest cities, among the upper income groups.

Finally, the general practitioner in Nigeria not infrequently has a small private hospital or maternity home, built, equipped and staffed either by himself or by the local community, for which he is, in any event, the sole doctor. Such a general practitioner is therefore in the perhaps enviable position of being able to continue treatment of his patients even when admission to hospital is necessary. The corollary to this, to which reference will be made later, is that the Nigerian practitioner is his own "specialist", particularly in internal medicine, surgery and gynaecology, a position which certainly has its advantages but carries with it greatly increased responsibilities and many hazards.

To sum up, therefore, the general practitioner in the context of this thesis, denotes an independent private practitioner with his own dispensary, and with or without his own small hospital.

BASIC DATA

Though in some respects it might be considered wiser, (and it would certainly be more orthodox), to leave all statistics to the main body of the study, certain basic figures provide one of the principal justifications for the thesis, and it is proper therefore, that they should find a place in the introduction.

In Nigeria in 1960 the ratio of doctors to population has been variously estimated at 1 : 33,000 and 1 : 42,000, the reason for this disparity being the fact that the 1963 national census figures, and therefore the intercensal estimates, are in dispute. The comparable Scottish figure is 1 : 820.[28] In actual numbers the Nigerian figure represents a total of 1079[29], doctors of all categories for between 36 and 45 million inhabitants, who are scattered over a country nearly four times the size of Great Britain.

Figure I [29,30,31] shows the breakdown of the Nigerian total according to type of employment:

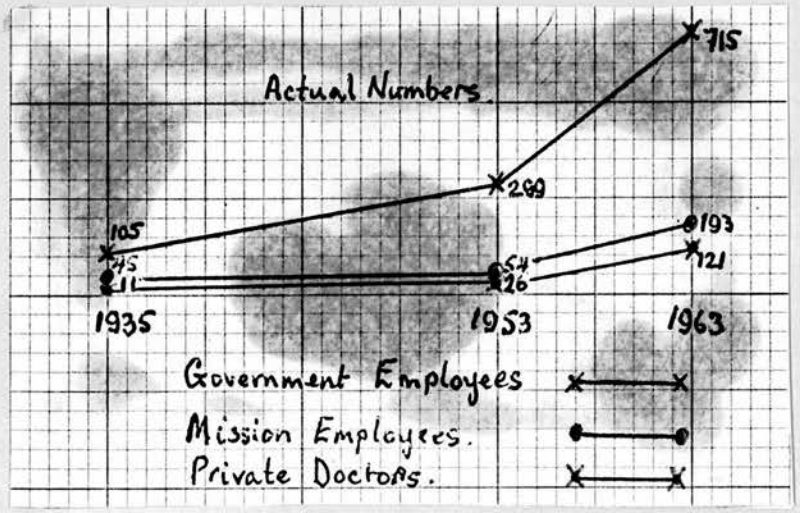

Figure I: Doctors in Nigeria: estimated disposition.

This figure indicates, inter alia, that both the number and proportion of general practitioners, though small are rapidly increasing. Unless there is a radical change in Government policy, not only will the numerical increase continue pari-passu with increasing numbers of Nigerians qualifying in medicine, but the proportion of private practitioners is likely to increase at an accelerating speed. This development may be interpreted as due partly to the natural fulfilment of a demand for an independent G.P. service, partly because of the anticipated positive attractions, financial and otherwise, of private work, and partly since the economy of the country as a whole and of other employers of doctors in particular, is unlikely to expand at such a rate as to permit a commensurate increase in state, mission or commercially employed doctors.

At present, (1965), only one university (Ibadan) is producing doctors, at the rate of about 50 per annum.[32] In addition to this figure, approximately 30 students qualify in medicine annually in universities in the United Kingdom, and a smaller but unknown number in other countries abroad. Another medical school has started, in Lagos, and, from all five existing Nigerian universities, three of which have as yet no medical faculties, "it is intended to produce about 400 doctors per annum from the year 1975.[33,34] If the present policy of employment by Government of clinical doctors solely in hospitals, field units or rural health centres is continued, it is inconceivable for economic reasons that more than a minority of this number will be absorbed into State service. And even this annual figure of 400 does not present the whole picture since a number, albeit a diminishing proportion, of doctors will continue to qualify outside Nigeria.

The increasing tendency, which has been mentioned, for local district associations to build and equip small hospitals and dispensaries and then to invite a general practitioner to take them over, is an added inducement to private practice.

So much for the basic statistics. Two further facts require re-emphasis.

If it were not already well recognised, these figures would indicate that Nigeria is grossly under-doctored by any yard-stick. This situation is, of course, common to all her neighbours and to most economically under-developed countries. What is not obvious from any published statistics but is equally well-known, is that the great preponderance of trained medical help is concentrated, even in a predominantly agricultural country such as Nigeria, in the towns and cities, and that rural areas have a very much smaller ratio of doctors. This situation applies particularly to general practitioners.

Secondly, notwithstanding the long-overdue attention now being paid to preventive medicine, the great bulk of the work of government and mission doctors is curative, while the preventive medicine being performed by general practitioners is almost non-existent.

The main body of this paper is divided into three parts: Part I is devoted to factual detail regarding Calabar and the medical man-power situation there; the part-time clinic referred to above,

which is the basis for this paper; and the records of the patients attending this clinic during the period of one year.

Part II records the treatment which was possible in a selection of disease conditions met with in the clinic, together with the difficulties, economic and otherwise, of such treatment. This part is therefore devoted largely to a discussion of curative medicine in its various aspects.

In Part III an attempt has been made to look into the future, to examine ways in which the quality of the curative medicine practiced by the private doctor could be enhanced; to suggest specific spheres in preventive medicine in which the general practitioner could and should be involved; and finally, to deal briefly on a broader basis with the future of general practice in the medical service of a developing country such as Nigeria.

The last part is necessarily less factual than the rest of the paper, and, although it may well pose more questions than it can answer, it is hoped that it may at least stimulate thought and discussion on this neglected subject.

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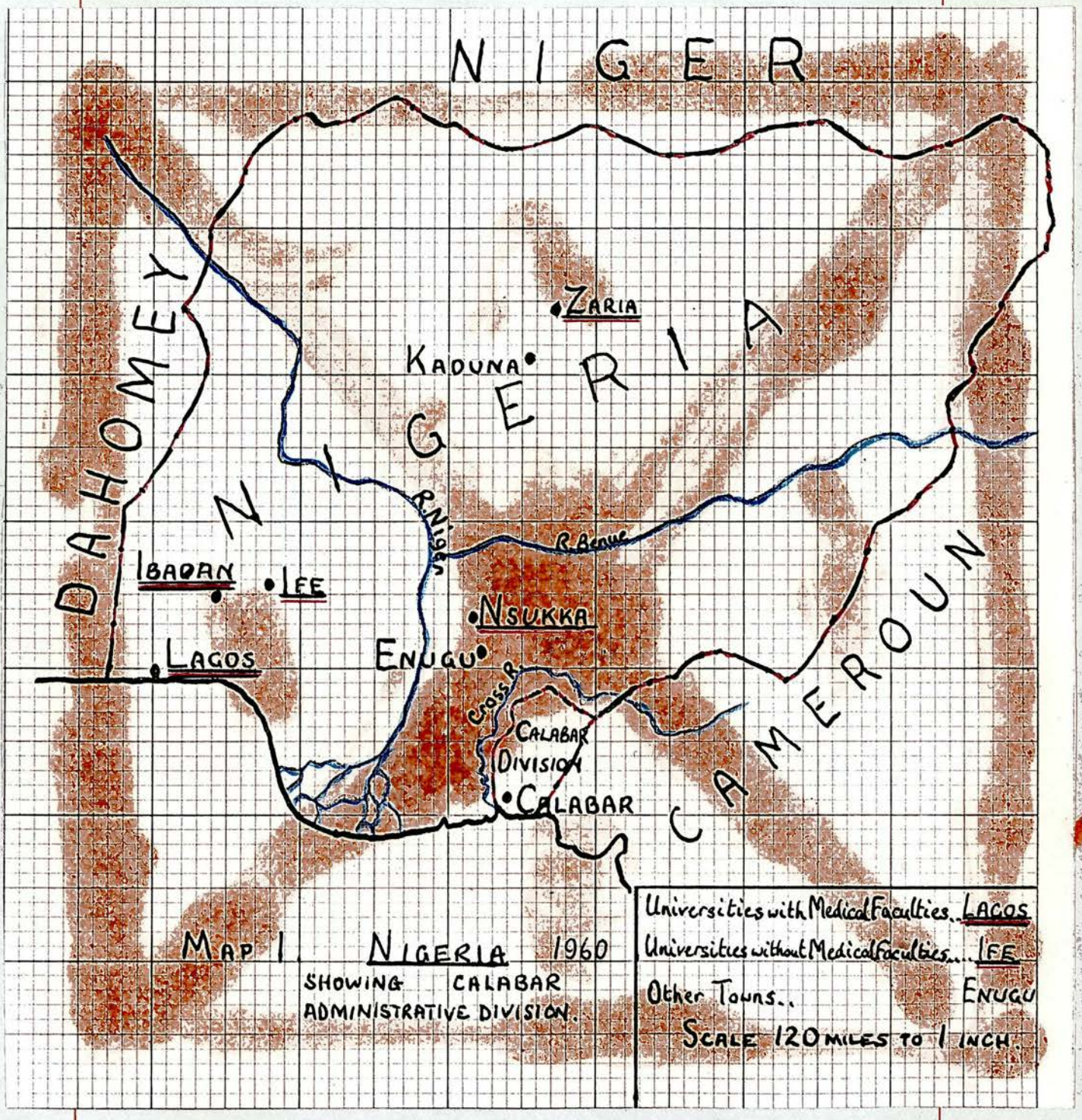

MAP 1. NIGERIA 1960
SHOWING CALABAR ADMINISTRATIVE DIVISION.

Part One: MORBIDITY STATISTICS IN GENERAL PRACTICE: NIGERIA

The evocative title of this part has been deliberately chosen to stress the contrast between the wealth of material included in Logan and Cushion's work[1] and the poverty of similar material available in countries like Nigeria.

That exhaustive and expert survey draws its material from many practices in all parts of Britain. Here are submitted data gathered in a single part-time practice in Nigeria, and analysed, often subjectively, by an amateur. There is no option; these are the only such records available in Nigeria, a country with nearly the same population as Great Britain.

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CHAPTER 1

THE BACKGROUND

(a) Geographical. Calabar, the town in which the clinic referred to was situated, has 47,000 inhabitants (1953 census) and lies on the tidal estuary of the liver of the same name, 5° north of the Equator, in the Southeast corner of Nigeria, 20 miles from the border of what

is now the Cameroon Republic (Map 1). For West Africa, it has a long modern history and descriptions of the approach to, and general configuration of the town written 219 years ago[2] are still valid to-day. It is unconnected except by ferry with the rest of Nigeria, and, since the decline of the importance of rivers as avenues of communication, it has therefore remained comparatively isolated, and has not participated to any extent in the rapid growth and industrial development of nearly all the other urban centres in the Southern part of Nigeria. Its inhabitants are almost equally divided into Efik and Ibo speaking communities. However, Calabar is an old-established educational centre and these language differences are being overlaid and concealed by the increasing use of English, while at the same time inter-racial differences, of which language is but the most obvious, are gradually being eliminated by intermarriage and by deliberate government policy.

There being no substantial industry in the town, the majority of the inhabitants are employed in farming, trade, services and a variety of government departments. Unemployment is not at present a problem, though no accurate information exists about it. There is very little migration of labour either into or out of the town, and, as a result, the family is a much more cohesive and stable unit than it appears to be in many other African communities.[3,4]

By tropical standards housing is good, and sun-dried brick or concrete dwellings are replacing the traditional mud and wattle. In the absence of rapid growth, shanty towns and a 'septic fringe' have been avoided. Until recently Calabar has been almost unique in Nigeria in that every road, street or lane has a name, and every house a number - a great advantage in carrying out public health

MAP 2. CALABAR DIVISION. 1960

Roads F....Ferries D....Dispensaries A....Airport

Plantations with Hospital

" without "

The areas enclosed by the green lines together contain 95% of the population of the Division. No population density maps are available.

SCALE 1 INCH = 8·6 MILES.

procedures and epidemiological investigation.

Piped water supply of reasonable purity is (1960) available all over the town, though not in every house, and there is an organised system of disposal of night-soil by buckets. Slaughtering of animals within the township, but not in its environs, is controlled by the Health and Veterinary Departments and there is a strict system of licensing and inspection of food vendors' premises in the market and elsewhere.

Calabar town is the administrative and medical centre for the "Division" of the same name, which has a total area of some 2,800 square miles and a population (including the town) of 140,000 (1953). There are no other towns in the area. (Map 2).

(b) Historical. It has been mentioned that historical reasons have been largely responsible for the insignificant proportion (until very recently) of general practitioners in Nigeria, and for the paucity of information about their work. A brief glance at these reasons may be a help towards understanding the present position.

The Calabar area is fairly typical, historically speaking, of coastal West African districts and its early medical history has been recorded by the writer.[5] The first doctor to practice "Western" medicine in the area arrived from Scotland in 1855. He was a medical missionary and missions provided the only doctors until 1888 when the first government doctor arrived. A government hospital, the oldest in the Eastern Region of Nigeria, was opened in the town in 1897, and about the same time the mission doctor was withdrawn from Calabar Division. From 1897 till 1946 therefore, the only medical practitioners in the area were employed by Government. In 1946 a palm oil and rubber plantation, 11 miles from the town, employed for the first

time a full-time doctor, and in 1956 another rubber plantation 35 miles from Calabar initiated an organised medical service with the employment of a doctor. In the same year the first general practitioner began work in Calabar town, though he was, and his successor still (196_) is, partly employed by a labour-recruiting agency.

Until 1951 the Government doctors in Calabar, like their colleagues all over the country, were permitted virtually unrestricted private practice, but this privilege was severely limited in that year. A number of factors combined to delay the emergence of the independent private general practitioner: the small total number of doctors in the country; the permissive private practice by government hospital doctors; and the fact that until after the 1939-45 war, most of the doctors were expatriates, generally from Britain. The private general practitioners, still numerically a small part of the medical scene, work usually in one of two types of environment, either in large towns that have an appreciable number of inhabitants in the upper income levels, or else as solitary doctors, perhaps with their own little hospitals, in small towns or semi-rural areas. The establishment but not the running costs of the latter type of practice, is sometimes subsidised by local community associations.

The historical fact that the first general practitioners were government hospital doctors has also been responsible for the non-existence of a tradition of payment for a doctor's skill and advice. In government hospitals payment by both outpatients and inpatients was, until recently, very small indeed. For example, in Calabar Government Hospital in 1958 no patient paid more than 2/-d. per day and this charge included all drugs as well as subsistence. Mission hospitals had to pay their way, nevertheless even in these payments were small,

and visible treatment in the shape of medicine or operations were (and are) given to all in "return" for the fees.

(c) Present day. It has already been mentioned that state control over private practitioners is almost completely absent. The intending general practitioner must indeed have qualifications that are registered in Nigeria; the design of his premises must be approved by the Ministry of Health; and he must render annual returns of "morbidity and mortality statistics". But he may practice anywhere he wishes, and although he is bound to render the returns mentioned, there is no check on whether these are accurate - in fact such supervision is lacking even in Government hospitals. Furthermore, very little attempt is made to use the private practitioner in public health work or to involve him in any way with his Government or mission colleagues. It is only fair to add that in areas where attempts have been made to bring the general practitioner into closer contact with these colleagues, the results have frequently been most discouraging. The private practitioner is therefore isolated from his fellows, and not only is the stimulus of meeting other doctors denied him, but the medical profession as a whole remains almost completely ignorant about his work.

As has been noted, about 1000 doctors cater, however inadequately, for the medical needs of the 36 million inhabitants of Nigeria. Translated into local terms the position is that in 1960-61 in Calabar Division (Map 2, facing page 15) there were 6 doctors for 140,000 inhabitants distributed very unevenly over an area a little bigger than Perthshire (population 128,000). Of the 6 doctors, 3 were Government medical officers responsible for about 400 inpatients in the hospitals in Calabar Town, where between 200 and 400 outpatients were also seen daily. Of the remaining 3, one was partly employed

by a labour-recruiting agency and had in addition a small private practice in the town; one was a full-time estate doctor, looking after some 2000 employees and their families; and one, the writer, was employed by another estate some 35 miles from the town, but had permission to work privately in the town on two half-days per week. This latter estate accommodated some 2500 workers and dependents.

These 6 doctors therefore constituted the total skilled medical aid for the area, in a ratio of 1 doctor to 23,000 of the population, a figure apparently somewhat better than that for the country as a whole. But it is significant that 4 of the 6 were almost completely committed to the care of the 47,000 inhabitants of the town of Calabar itself. Assuredly a proportion of patients came from the landward areas to Calabar for treatment, but this proportion was invariably small in the absence of reasonable transport facilities. The other two doctors were normally fully committed to the care of the 4500 estate employees and their families. Nearly 100,000 inhabitants in the rural parts of the Division were therefore without any easily accessible medical assistance other than that provided by seven small dispensaries with the most rudimentary equipment and stocks, and with poorly trained dispensary attendants in charge. The situation was by no means atypical of that obtaining in the country as a whole at that time, and there has been no material alteration up to the present.[5]

Preventive medical services were in an even more embryonic state in Calabar. One of the government hospital doctors acted, theoretically, as Medical Officer of Health for the whole Division and as Port Health Officer of Calabar, but in fact nearly all the day-to-day work was

performed by a staff of Health Inspectors, trained in Nigeria. For some six years a School Health Service, covering some 3,800 pupils was also run by a government medical officer, but this has not operated since 1958.

The contrast between the medical man-power situation in Nigeria and in Scotland may perhaps be high-lighted not only by national (page 7) but by local or parochial comparisons. No town comparable to Calabar in its size, coupled with its lack of industry, exists in Scotland to-day, but the Falkirk-Grangemouth conurbation in Stirlingshire, with its surrounding villages has about the same population. Table II shows the comparative figures for all types of doctors.

TABLE II[6,7,8,9].

	Calabar Town	Falkirk/Grangemouth
Population (Urban area	47,000	56,000
Population (Environs	15,000	13,000
Hospitals: General beds	165	282
Maternity beds	34	50
I.D. beds	45	103
General Practitioners	1 (part time)	43
Hospital doctors all grades	3	18 + 18 part-time.
M.O.H. medical staff	-	2
	4	63 + 18 part-time.

More detailed comparisons between the two situations would be difficult to justify, but the gross figures are perhaps sufficiently striking.

(d) The Clinic. The part-time clinic whose records form the basis of this study, was held in a converted private dwelling house near the centre of Calabar Town. (See Appendices A and B for plan and list of equipment). In establishing the clinic the same procedure was followed as might be necessary for any young man setting up in General Practice in Calabar. The premises were rented and alterations and renovation carried out. Some difficulties were encountered, for example in obtaining suitable electrical wiring for sterilization, etc.

The clinic was held on two days in the week from 2 p.m. till late evening. Some of the day-to-day details of its operation had a profound influence on the type of clientèle attending and on the quality of the records, and they should therefore be recorded here. Further details that are of importance in the discussion of the future of general practice in Nigeria, will be recorded in Part II.

Patients on arrival in the waiting-room were issued with a small ticket bearing only the day's date and a serial number, adults' and children's tickets being of different colours and numbered independently. All children who required them were issued with these tickets however late they arrived. Adults' tickets, however, except for cases of serious illness, were handed out on a first-come-first-served principle, and only in such a number as was considered practicable for the particular day, since possession of a ticket guaranteed a consultation on that day. The patients could then wait, or go home and return later.

Starting with the children, the patients were called in numerical order to the office/dispensary where they were given a card on which their name and address, age and tribe, were written. They then

returned to the waiting-room before being called, in the same numerical order, to the consulting-room where their history was taken, a clinical examination performed, and any simple procedures such as urine testing carried out. All the results were recorded on the card. Any necessary injections were given and a note made of any drugs to be dispensed. If a subsequent visit was considered desirable a numbered dated ticket was given. The patient then returned to the office where the card was handed over to be filed, and the drugs prescribed were dispensed. (See Appendix C for a list of drugs held).

A fee, depending in size on the presumed financial status of the patient and the cost of drugs dispensed, was asked for. "Asked for" is used advisedly since about half of the children and more than ten per cent of the adults were apparently unable to afford even the cost of the drugs. These were nevertheless dispensed in all cases, except to a very small proportion of adults with minor complaints whose professed inability to pay was manifestly false. This point is emphasised to show that the effect of the patients' economic circumstances on their ability to obtain treatment was minimal, and that therefore these records present a picture much nearer to the true disease pattern than those of other private practices in otherwise similar circumstances where a preliminary, often deterrent, charge is made.[10] Though, in view of the large numbers, an appointments system was not generally practicable, four or five patients, nearly all government officials or businessmen, were seen each day at specified times. Very ill patients, whether children or adults, were seen as soon as they arrived. With both of these categories the same record procedure was followed. The only

exceptions to this procedure were 21 patients who, during the course of the year, were visited in their own homes. This very small number posed no problem in regard to consistent and accurate records. Limited time was responsible for the tiny proportion of domiciliary visits.

These details have been set down to show that this system ensured that there was almost no chance of omission of any records from the patients' cards, and that the possibility of a card being lost was remote. Large numbers - up to 110 patients - were being seen in the course of an afternoon and evening, and it was absolutely necessary to record brief clinical details on each card, for reference in the event of subsequent visits. Similarly, drugs could not be dispensed without a note on the card of those prescribed, and such information was therefore never omitted. Collings[11] and others[12,13] have drawn attention to the difficulties of keeping adequate records in general practice, and at the same time have emphasised their indispensibility for good diagnosis and treatment. Eimerl[14] has reviewed their value in epidemiological studies. This clinic in Calabar could not have operated at all had reasonably good records not been kept, and it is to be hoped that they are also satisfactory enough to form at least the starting-point for more elaborate epidemiological study.

At first sight it is surprising that so little has been published from tropical countries of general practice records there. Many conditions however, militate against such publication. Lack of clinical help, absolute overwork (which is almost invariable), and absence of any incentive, financial or otherwise, are the most obvious reasons. Moreover, the criteria of diagnosis in general

practice, whether this practice be in Nigeria, Norway or Great Britain, are so different from those obtaining in hospital practice, that there may be an understandable reluctance to publish such data. Nevertheless, it is hoped to demonstrate that the value of such records need not necessarily be vitiated by the frequent lack of precision in diagnosis.

CHAPTER 2

GENERAL CONSIDERATION OF RECORDS

The records of the 3,332 patients seen in the course of the year July 1960 - July 1961, were not compiled with this analysis in view. They were essential for the efficient running of the clinic. Since the total staff of the clinic consisted of the writer, his wife (who acted as dispenser and keeper of the records), a caretaker, and an occasional voluntary "usher", the records had to be kept as brief as possible. Each patient's card recorded name and address; age - often estimated; sex; tribe; dates of attendance; presenting complaint; minimum clinical features; diagnosis; treatment, including a note of

every drug prescribed; and the fee charged. Additional information, such as results of X-ray or laboratory examination, was recorded where appropriate.

In interpreting the records that follow it is important to stress that it is impossible to estimate from them the prevalence of any disease in Calabar Town or in any other fixed population in the area. No doctor in Nigeria, unless he works specifically and solely for a commercial company, a plantation for example, is responsible for a known population. No Nigerian general practitioner has a panel, a known number who have the right to consult him, though in a few cases he may have arrangements with firms or missions whereby their employees are treated by him on a capitation fee, or other basis. Even the population of the town or district where he works is of little relevance with regard to disease prevalence, since an unknown number of inhabitants of other areas may travel long distances to consult him, and, in contrast, patients from his own locality may, for a variety of reasons, go elsewhere for medical help. (Foster[15]). Inevitably therefore, there are unknown biasses in many directions, and accurate morbidity statistics cannot be expected in such circumstances. Furthermore, though a specific age was entered on each patient's card, division of the adults into quinquennial age-groups has not been considered really meaningful for this study since in the majority of cases the recorded age was only an estimation, and as such liable to considerable error. Adults' ages were therefore grouped as "between 20 and 45" and "over 45" only, such classification being also of some practical physio-pathological significance, especially in women. It should, however, be appreciated that even this crude age-classification is open to a good deal of error in

TABLE III

AGE-SEX-RACE DISTRIBUTION : NUMBERS OF PATIENTS

Age	Sex		Racial Groups						
	Male	Female	Efik	Ibo	Other African	European	Asian	TOTAL	
0 < 2	335		107	217	10	-	1	)	601
		266	91	161	12	2	-	)	
2 < 5	223		62	151	9	-	1	)	371
		148	43	93	11	1	-	)	
5 < 10	126		36	84	5	-	1	)	214
		88	22	63	2	1	-	)	
10 < 15	49		13	35	-	-	1	)	82
		33	13	16	3	1	-	)	
15 < 20	62		25	33	4	-	-	)	100
		38	19	18	-	1	-	)	
20 < 45	597		177	365	38	12	5	)	1547
		950	348	552	41	5	4	)	
> 45	167		81	66	15	3	2	)	417
		250	168	73	5	3	1	)	
	1559	1773	1205	1927	155	29	16	3332	

respect of patients between 40 and 50 years of age. In children on the other hand, the majority of ages were known, and in the discussion of paediatric problems, an analysis into quinquennial or smaller age groups will be used when appropriate.

Age-sex-race distribution. Table III shows the total number of patients classified according to age, sex and race.

TABLE III

AGE-SEX-RACE DISTRIBUTION : NUMBERS OF PATIENTS

Age	Sex		Racial Groups					TOTAL
	Male	Female	Efik	Ibo	Other African	European	Asian	
0 < 2	335	266	107 91	217 161	10 12	- 2	1 -	601
2 < 5	223	148	62 43	151 93	9 11	- 1	1 -	371
5 < 10	126	88	36 22	84 63	5 2	- 1	1 -	214
10 < 15	49	33	13 13	35 16	- 3	- 1	1 -	82
15 < 20	62	38	25 19	33 18	4 -	- 1	- -	100
20 < 45	597	950	177 348	365 552	38 41	12 5	5 4	1547
> 45	167	250	81 168	66 73	15 5	3 3	2 1	417
	1559	1773	1205	1927	155	29	16	3332

972 patients were under the age of 5, and a further 296 between 5 and 15 years of age. The high proportion of children - 38.0% - was the result of deliberate encouragement, a policy that stemmed on the one hand from the recognition of the vital importance of paediatrics in such a society, and on the other, from the realisation that unless children were actively encouraged, they would be squeezed out by adults, most of whom were in less urgent need of assistance.

Of the children under 15, 57.8% were male, a ratio of 137 male to 100 female. The male preponderance may be partly explained by the Male : Female ratio of child population in Calabar town, but for this no reliable figures are available. In addition there is the possibility that the traditional social importance of the male child may be a determining factor in an unknown proportion of cases.

The sex ratio was completely reversed in the case of the adult patients, being 63 males to 100 females in those aged 20 to 45, and 67 males to 100 females in those over 45. This may be explained on three grounds: (a) A high proportion of working adult males are employed either by Government, large commercial houses or missions, most of which would pay their employees' medical expenses at a Government hospital, but not fees payable to a private practitioner; (b) the importance of the child-bearing woman in her social environment; the high proportion of gynaecological complaints recorded among women of this age-group is significant; and (c) generally speaking, in Nigeria, as in Britain, the mothers, rather than the fathers, accompany sick children to a doctor, and take the opportunity of consultations on their own behalf as well.

Presenting Complaints. All the presenting complaints are recorded in

Appendix D. A correlation between these and eventual diagnoses might have been of some general interest, but its practical use did not appear to justify compiling the very complicated table that would be necessary. In the case of some individual diagnoses however, for example, malaria and the complaint of fever, such a comparison has been made.

The principal presenting complaints, (i.e. those which were responsible for bringing the patient to the doctor), were as follows:

(a) Children. Fever was the commonest complaint, followed closely by diarrhoea and cough, and more remotely by skin disorders - Table IV.

(b) Among male adults, rheumatic pains were the commonest complaint, followed very closely by fever and by abdominal pains and skin troubles in that order - Table V. The percentages complaining of cough and diarrhoea are included for comparison with the figures for children in Table IV.

(c) Adult females. Almost half (435, 45.9 %) of the 950 women patients of approximate child-bearing age presented with some gynaecological symptom, together with 64, (25.6 %) of the 250 women over the age of 45. Since there was by no means a bias towards gynaecology in this practice - rather the reverse - this proportion would seem to present a picture that is at least not an exaggerated one. It is also significant that 11.6 % of the 950 women between 20 and 45 complained of sterility, relative or absolute. This complaint was frequently elicited only at the second or third consultation, and the real proportion may be much higher. Stamm[10] in Jamaica made a similar observation. In contrast, in no case did a husband or wife seek family planning advice but this may well have been due partly to

TABLE IV

PERCENTAGES OF CHILDREN WITH VARIOUS PRINCIPAL PRESENTING COMPLAINTS

Age	Total Number	Principal Presenting Complaints Percentage of total in each Age Group					
		Fever	Diarrhoea	Cough	Fever + Diarrhoea	Fever + Cough	Skin Complaints
0 < 2	601	47.4	35.1	29.3	16.1	9.7	13.6
2 < 5	371	40.4	18.6	26.7	6.8	9.7	18.3
5 < 10	214	49.4	10.0	24.8	6.2	10.0	14.5
10 < 15	82	30.5	3.7	15.9	1.2	7.1	17.1
15 < 20	100	17.0	2.0	3.0	nil.	1.0	7.0

TABLE V

PERCENTAGES OF MALE ADULTS WITH VARIOUS PRINCIPAL PRESENTING COMPLAINTS

Age	Total No.	Principal Presenting Complaints Percentage of total in each Age Group "Rheumatism"	Fever	Abd.Pain	Skin Complaints	Cough	Diarrhoea
20 < 45	590	21.0	20.3	16.6	12.9	5.6	3.2
> 45	167	27.5	21.6	10.8	6.0	4.8	1.2

ignorance.

Fever, non-gynaecological abdominal pain, and rheumatism, followed gynaecological complaints in order of frequency - Table VI. In addition, 129 women believed themselves to be pregnent, and in 121 of these the belief proved correct.

Diagnoses. Several methods of recording these were possible: one could choose and record a principal diagnosis for each patient or for each patient/doctor contact; or only the first diagnosis; or all diagnoses with or without appropriate 'weighting' in cases of multiple diagnoses, as suggested by Logan.[16] Recording of a single diagnosis only would certainly present a simpler picture but, the reality is not simple and therefore every diagnosis made has been recorded, without weighting. In Africa, especially among the children, multiple pathology appears to be as common as it is in old folk in Britain, and no disease pattern, even of an individual, let alone that of a large group of people, can be expressed in simple terms.

With regard to specific diagnostic criteria there were two broad possibilities. Laboratory or other confirmation might have been demanded before any patient was labelled as 'malaria', 'gonorrhoea' or many other conditions. But liaison with the only available laboratory was, for most of the period, poor, since fees quite beyond most patients' resources were demanded; the alternative of organising laboratory work as part of the clinic was not possible because of the numbers attending. A large proportion of cases - unconfirmed, if this course had been followed - would have been relegated to the rag-bags of 'P.U.O.', 'Urethritis' or 'No definite diagnosis'. Therefore, (and also since treatment based on clinical diagnosis was given), all but a small minority of cases were diagnosed on clinical grounds only.

TABLE VI

PERCENTAGES OF FEMALE ADULTS WITH VARIOUS PRINCIPAL PRESENTING COMPLAINTS

Age	Total No.	Principal Presenting Complaints Percentage of total in each Age Group						
		Gynaecological	Fever	Abd.pain	'Rheumatism'	Pregnancy	Diarrhoea	Cough
20 < 45	950	45.9	28.9	16.7	13.6	13.5	3.2	3.1
> 45	250	25.6	30.4	18.0	39.2	0.4	2.8	5.6

The minority included all cases of pulmonary tuberculosis for which laboratory and X-ray confirmation were always available. The shortcomings of some of the clinical diagnoses will be discussed under the appropriate headings.

For the purposes of this record the cases were further divided into four diagnostic categories:

Category A: Those patients who, for all their disease conditions during the year were considered to have been adequately diagnosed and treated without any necessity for laboratory, X-ray or other hospital facilities.

Category B: All patients who, during the year, had some illness that was reasonably adequately diagnosed and treated without hospital assistance, but for whom laboratory, X-ray or other hospital investigation would have been used had these been freely available.

Category C: Those patients who suffered during the year from illnesses which necessitated hospital facilities for adequate diagnosis and/or treatment.

Category D: Patients requiring hospital admission for any complaint, whether actually admitted to hospital or not.

The relative proportions of patients in each category is shown in Table VII.

This grouping is somewhat similar to, though not as elaborate as that used by Duncan[17] in Portsmouth, and serves to illustrate the necessity for close co-operation between hospital and general practitioner. The classification is subject to two qualifications. In the first place it is subjective and probably liable to even more personal bias than most other diagnostic groupings. Secondly, in the nature of the definition of these categories there were many Category D

TABLE VII

DIAGNOSTIC CATEGORIES BASED ON NECESSITY FOR HOSPITAL INVESTIGATION (pp. 31-32)

	Age 0 < 20 Both Sexes		Age 20 < 45 Male		Age 20 < 45 Female		Age > 45 Both Sexes		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%
CATEGORY A	747	54.6	333	55.8	571	60.1	262	62.8	1912	57.4
CATEGORY B	438	32.0	64	10.7	119	12.5	66	15.8	687	20.6
CATEGORY C	69	5.0	159	26.6	194	20.4	47	11.3	469	14.1
CATEGORY D	115	8.4	41	6.9	66	6.9	42	10.0	264	7.9
	1,369	100.0	597	100.0	950	99.9	417	99.9	3,332	100.0

patients who had, in addition to the condition which necessitated hospital admission, other illnesses which could be, and were, adequately diagnosed and treated at the clinic on purely clinical grounds. The same applies to many patients in Categories C and B. The patient was the unit of analysis, and by definition the category depended on the most serious disease present. This appeared more reasonable than to use the disease as the unit, since it was then possible to define the percentage of patients considered to have been adequately diagnosed and treated without hospital assistance. In fact 78 % were so diagnosed and treated compared with 82 % in Duncan's practice referred to above.

Since there was very poor communication between the hospital and the clinic it is not possible to estimate how many patients in Categories C and D did in fact attend hospital.

Severity of Disease. One further diagnostic grouping was attempted. An estimate of the severity of the illness in each patient was thought to be of some interest, especially in the comparison of the childhood with the adult disease pattern. The writer was unaware of the Backett, Shaw and Evans[18] classification at the time when the cases were recorded; in the event, however, the criteria used here are not markedly different from Backett's. Serious illness was defined as "any treatable condition which, untreated, might reasonably be expected to terminate in death, or to leave permanent and disabling stigmata; and also such deformities or other conditions - such as inguinal herniae - which, by their presence, caused, or were liable to cause, disability". For this somewhat longwinded, but it is hoped, comprehensive definition, the writer bears the entire

responsibility. Backett's criteria were based on "the idea of imminent threat to the life or livelihood of the patient, or the need for a major readjustment on his part or that of the family". Such conditions as acute surgical emergencies, pulmonary tuberculosis, cancer and peptic ulcer were also classed (by Backett) as serious.

It is obvious that, excepting uncomplicated cases of hernia, the two definitions correspond quite closely. The Calabar criteria, however, excluded conditions such as mental defect.

Using the Calabar criteria, 18.7 % of all patients were seriously sick. Backett[18] found that in an industrial practice in London about 16 % of new diagnoses were considered to be serious and Taylor[19] estimated that, in a series of 700 doctor-patient contacts, 35 % could be classed as serious. These three percentages are not directly comparable, except in the most general terms, since the unit of analysis - patient, new diagnosis and doctor-patient contact respectively - is different in each case.

The two broad age-groups in Calabar can, however, usefully be compared with each other: 26.4 % of children and adolescents were seriously sick, compared with only 13.3 % of adults. Even these figures do not present the whole picture since <u>all</u> the young people who appeared for treatment were seen, assessed and treated, while many adults were turned away and naturally these did not include any who were obviously seriously sick.

This finding of a very much greater proportion of seriously ill children conforms to the writer's own impressions over 10 years' service in the same area, and also to published statistics such as those of Stamm.[10]

<u>Absence of Consultants</u>. A further general point should be made.

In Calabar in 1960-61, as in all medical centres in Nigeria except those in close proximity to the four regional or federal headquarters, no specialist or consultant assistance was available to the general practitioner. The latter could indeed, usually secure admission for his patients to the nearest hospital without great difficulty, but consultant advice, or even a second opinion from a general practitioner colleague, was very rarely possible except for those patients whose medical and/or economic condition justified referral to a centre which might be from 250 to 600 miles distant. Further reference will be made to this aspect of the general practitioner's work.

Social Class. No attempt was made to divide the patients into groups based on social class or sophistication as has been done by Gelfand[20] in a Central African milieu. He classified Africans into three grades: Grade I, the traditional Africans living in their rural environment; Grade II those who have adopted many European practices but are still tied to their traditional customs; and Grade III, those who have fully adopted the European way of life. Such a classification may have great epidemiological interest in field studies of large populations, but has little or no relevance in the situation here described where the vast majority of patients did in fact, belong to Gelfand's Grade II.

Social class grading on the British model is not possible in West African context.

CHAPTER 3

THE GENERAL PRACTICE DISEASE PATTERN IN CALABAR

Comparison with British statistics is of very limited interest or value except perhaps in the broadest terms, as for example in the consideration of relative frequency of occurrence of various diagnostic groups. Figure 2 shows the percentage distribution of diagnostic groups in Logan and Cushion's[21] study, together with a similar analysis of the Calabar diagnoses.

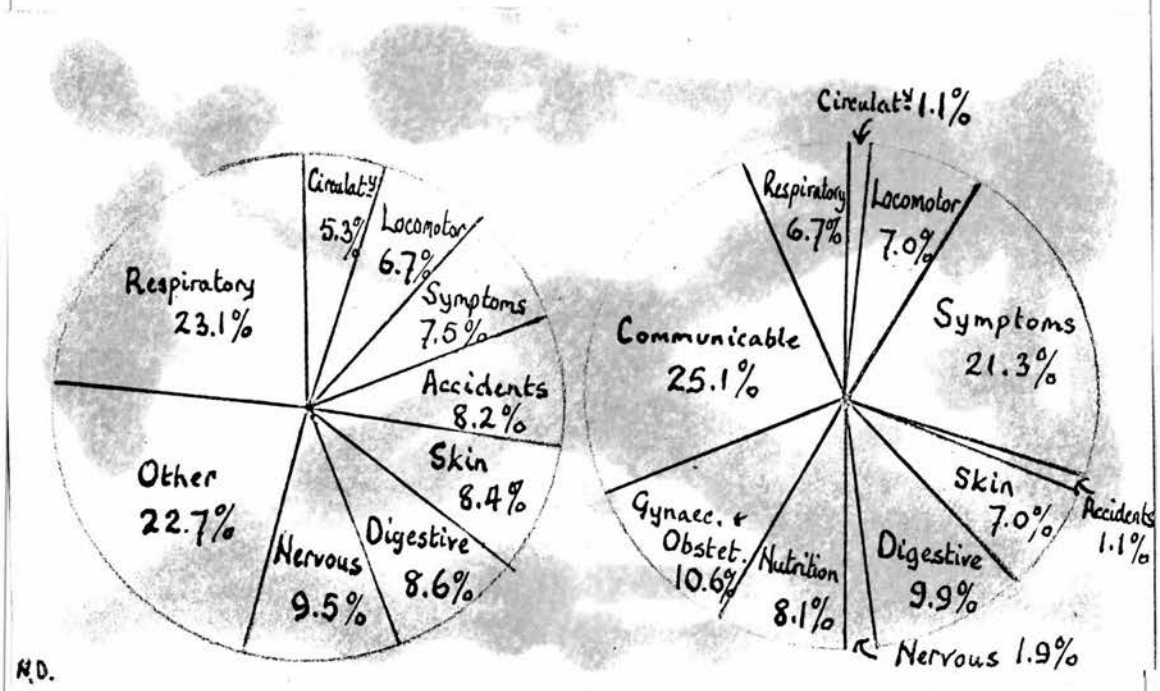


Figure 2

a) Britain b) Calabar

Percentage distribution of Diagnostic Groups, U.K. and Calabar.

The most striking differences between the two patterns are the very much smaller percentages of respiratory, circulatory and nervous disorders, and of accidents, in the Calabar practice. These are replaced as major diagnostic groups by communicable disease, obstetrical and gynaecological disorders, and by nutritional deficiencies. The reasons for the majority of the differences are for the most part self-evident, being largely environmental and common to any tropical milieu. Where appropriate they will be discussed more fully in the sections devoted to specific diagnostic groups. On the other hand, the very low proportion of accidents is due to the fact that the clinic operated only twice weekly; there was a general hospital with a casualty department in the town, and patients with the acute effects of accidents naturally gravitated to the hospital.

Figures 3 and 4 show similar comparisons in the percentage age distributions of patients suffering from respiratory and circulatory diseases respectively. The British figures are again from Logan and Cushion.

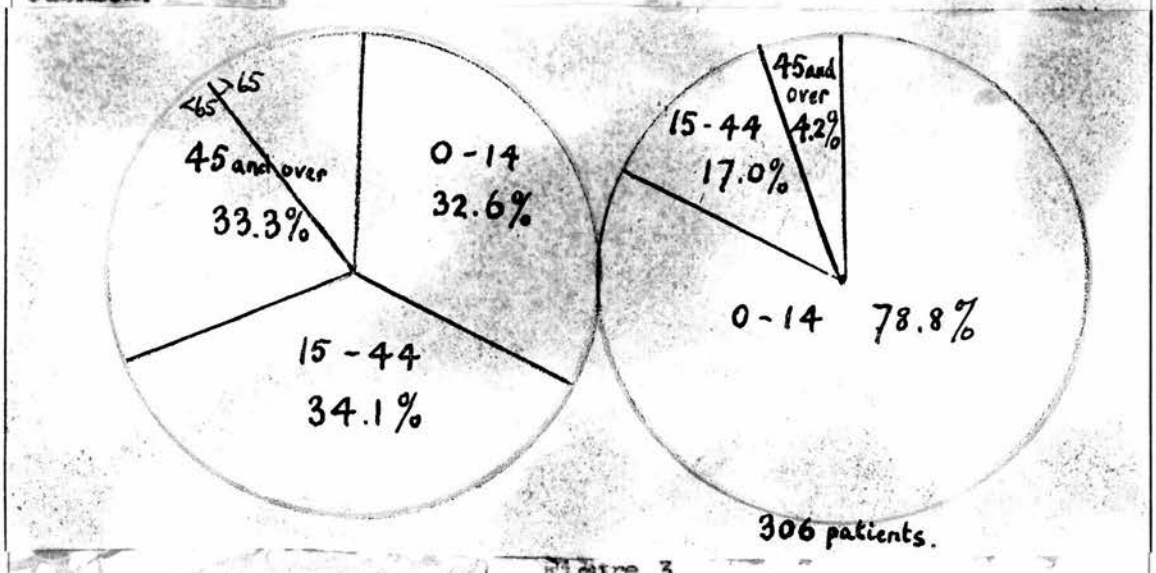


Figure 3

a) Britain

b) Calabar
Total 306 patients.

Percentage age distribution of patients suffering from respiratory disease - U.K. and Calabar.

The very marked preponderance of children in the Calabar figure is due partly to the large proportion of patients of this age-group attending the clinic, and partly to the prevalence of lower respiratory infection in Nigerian infants and young children. But these two reasons account for only a minor part of the difference; the main cause is the almost complete non-occurrence of pneumonia and chronic bronchitis in adults in this area.

Though the total number of patients with circulatory disease is too small for meaningful analysis the age-distribution of this small number does in fact correspond quite closely to that of the British study - Figure 4.

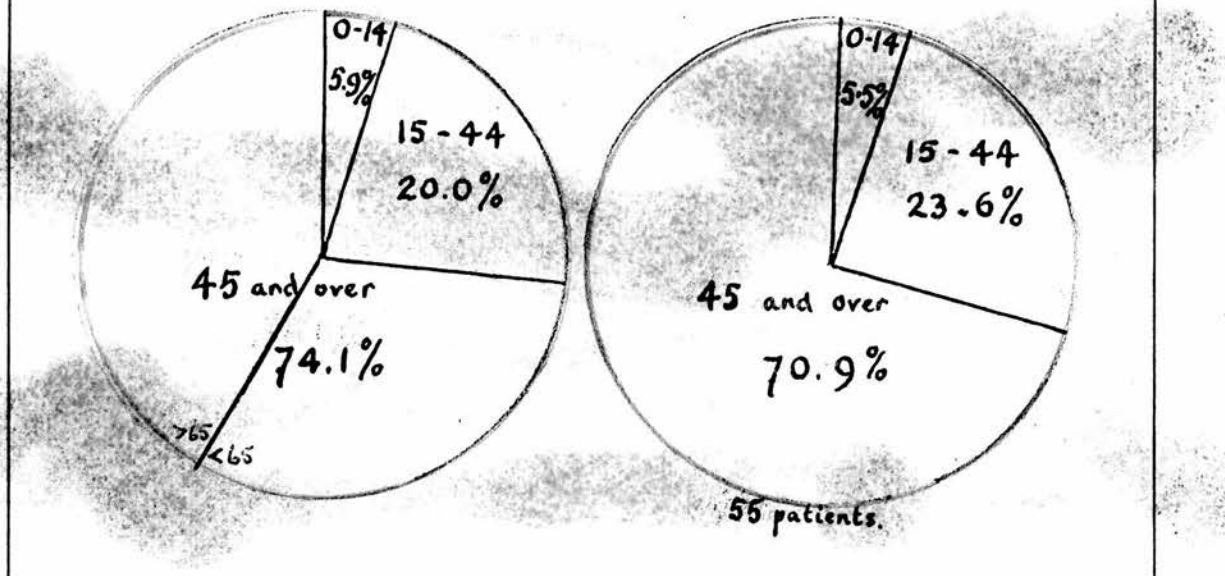


Figure 4.

a) Britain

b) Calabar
Total 55 patients.

Percentage age distribution of patients suffering from circulatory disease - U.K. and Calabar.

Before attempting to analyse in greater detail the disease pattern as seen in the clinic it is salutary to consider briefly the aims and the limitations of the process of diagnosis as they affect

this study. In one of the best expositions of these aims and limitations Cohen[22] has characterised the process of diagnosis as being one of "observation, interpretation and symbolisation or labelling". And he stated that the main aim of diagnosis was "providing a rational basis for treatment and prognosis".

These postulates are sound, and few would quarrel with, or even, to any degree, amplify them. But in the context of a single-handed, often isolated general practice in Nigeria it must be appreciated that: "observation" may be handicapped by limitations of time and facilities; "interpretation" is often subjective and is in any event almost never confirmed by any other opinion; while "symbolisation or labelling" may be inconsistent and is often too dogmatic. Time and time again one must admit, as will be seen in the following pages, that the final diagnostic label is "a provisional verdict on admittedly inadequate available evidence".[22]

But "we must act",[22] and the necessity for action, curative or preventive, may compel a clinician to attach to a patient a definite label which appears to be more precise than is warranted by the imperfect diagnostic processes available to him. With these limitations in mind, it would appear to be of value to consider in some detail some specific diagnoses recorded in this clinic.

Since the diseases of childhood present somewhat different problems in diagnosis from those in adult age-groups (and more markedly than in Britain), they will be dealt with separately, even though many diagnoses are common to both children and adults.

CHAPTER 4

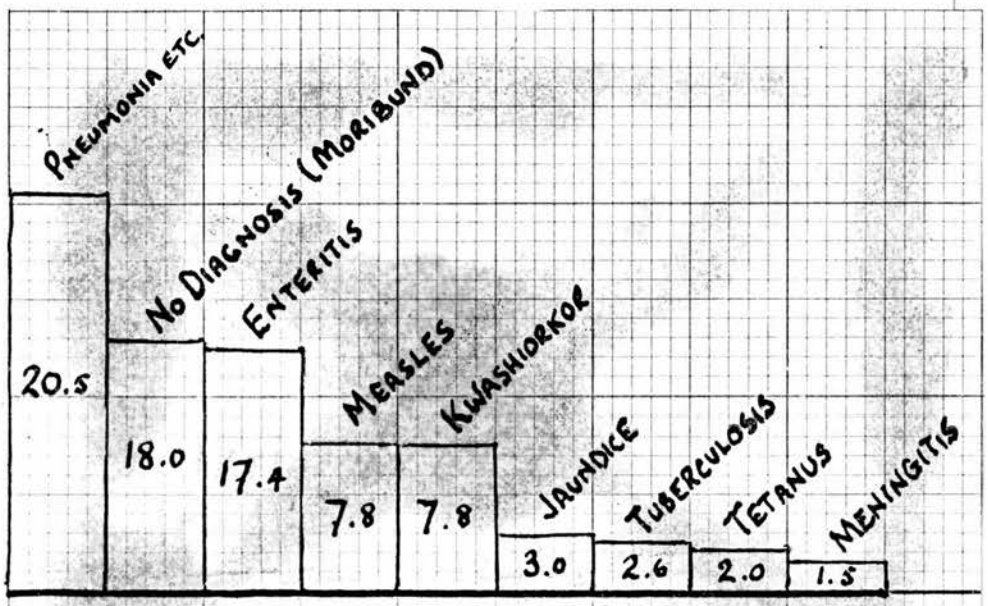
PAEDIATRIC PROBLEMS

As has been stated above, primary importance was accorded to the treatment and prevention of illness in childhood and the attendance of children with their mothers was therefore actively encouraged. The response to this encouragement especially in respect of children under school age, is evident from the figures in Table III, page 25, and this is also a measure of the regard in which Calabar people, in common with those elsewhere in Nigeria, hold their children. There appeared to be no reluctance of parents to submit their children to 'Western medicine', though elsewhere in Africa superstition and dependence on the witch doctor has been mentioned as a frequent impediment in this context.[23,24] If a proportion were brought too late for help and maybe after a previous trial-of-cure with a so-called 'native doctor', this situation is perhaps not very different from that obtaining in Britain where credulous perusal of a "Home Doctor" and subsequent self-medication are a not infrequent preliminary to the seeking of qualified medical help.[25] And we also have our spirit healers, though their techniques are somewhat more sophisticated. (Koos)[26]

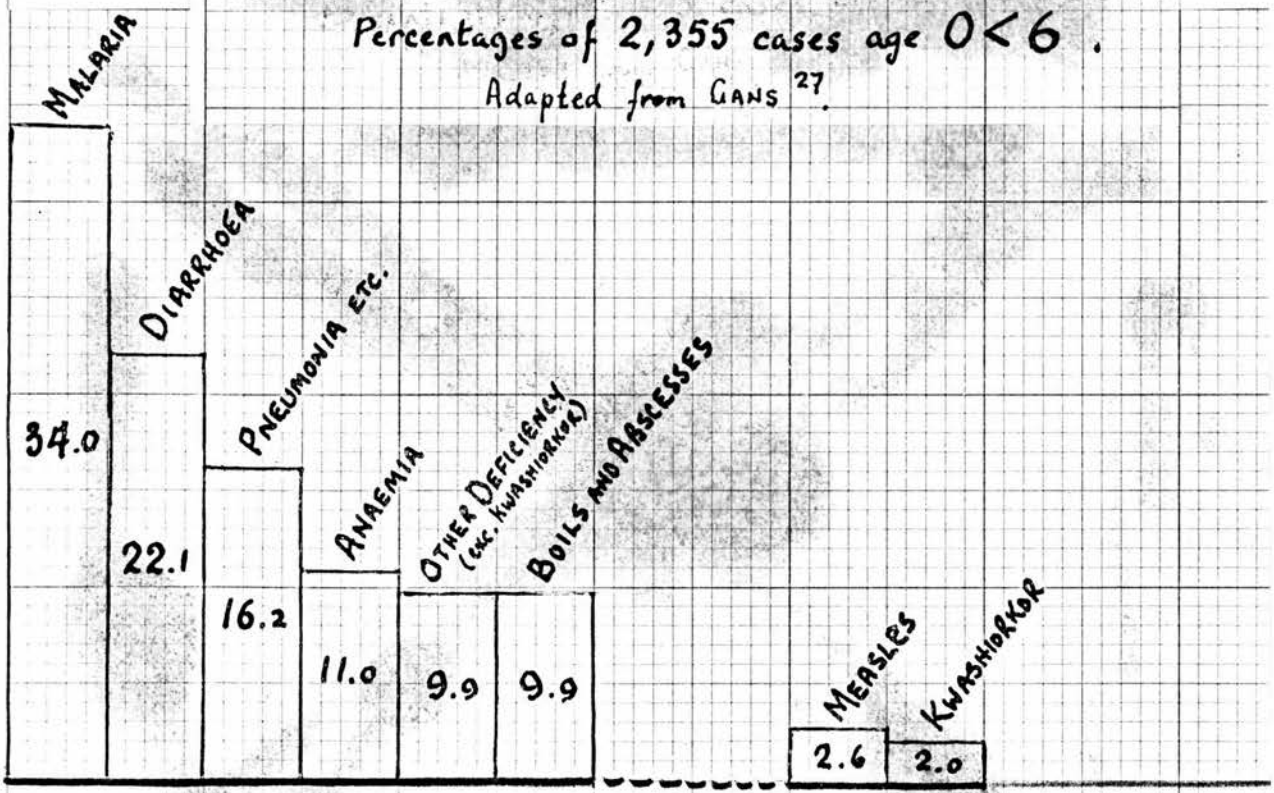
Table VIII (page 43) indicates the most important diagnoses made in children and adolescents. Comparison of such a paediatric disease pattern with corresponding patterns in temperate or even other tropical countries is not profitable since there are so many known and unknown variables. On the other hand it is of some interest to note how this general practice pattern of childhood disease complements that

noted by Gans[27] in hospital practice in Lagos, Nigeria (Figure 5). Since however, the Lagos figures relate to principal diagnoses only, and there are other differences of criteria, caution must be used in drawing any conclusions from the comparison.

Fig. 5.



a). LAGOS HOSPITAL: Main Paediatric Disease Groups. Percentages of 2,355 cases age 0<6. Adapted from GANS[27].



b). CALABAR CLINIC: Main Paediatric Disease Groups. Percentages of Diagnoses made in 972 cases age 0<5.

TABLE VIII

PRINCIPAL DIAGNOSES IN CHILDREN AND ADOLESCENTS

Age Group Total Nos. in each group = 100%	0< 2 601		2< 5 371		5< 10 214		10< 15 82		15 < 20 100		All under 20 yrs. 1368	
Diagnoses	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Malaria	200	33.0	130	35.0	106	49.5	26	31.7	18	18.0	480	35.8
Diarrhoeal Disease	165	27.5	50	13.5	17	7.9	3	3.5	1.	1.0	236	17.3
Bronchial and Pulmonary Infection*	112	18.7	45	12.1	31	14.5	4	4.9	-	-	192	14.0
Deficiency Disease	75	12.5	49	13.3	29	13.5	7	8.5	9	9.0	169	12.4
Anaemia	67	11.1	40	10.8	28	13.1	7	8.5	4	4.0	146	10.7
Boils and Abscesses	62	10.3	31	8.4	10	4.7	2	2.4	2	2.0	107	7.8
Scabies	57	9.5	42	11.3	25	11.7	6	7.3	4	4.0	134	9.8
Dermatitis	36	6.0	31	8.4	11	5.1	6	7.3	2	2.0	86	6.3
Childhood Infections+	29	5.0	14	3.8	5	2.3	2	2.4	-	-	50	3.7
Deformities	17	2.8	11	3.0	7	3.3	4	4.9	4	4.0	43	3.1
Suppurative Otitis Media	14	2.4	22	5.9	5	2.3	4	4.9	-	-	45	3.3
Hernia	9	1.5	2	0.5	-	-	-.	-	2	2.0	13	1.0
Other Diagnoses	139	23.2	106	28.6	51	23.8	34	41.5	59	59.0	389	28.4

*Excluding tuberculosis.

+Measles, chickenpox, whooping cough, mumps, yaws, neonatal tetanus.

It however, serves at least to underline the unbalanced and incomplete picture presented by either hospital admissions or general practice statistics alone.

On the other hand, comparison with a small hospital out-patient series[28] of pre-school children in Calabar shows a much closer correspondence, though the diagnostic criteria used were not identical. (Figure 6).

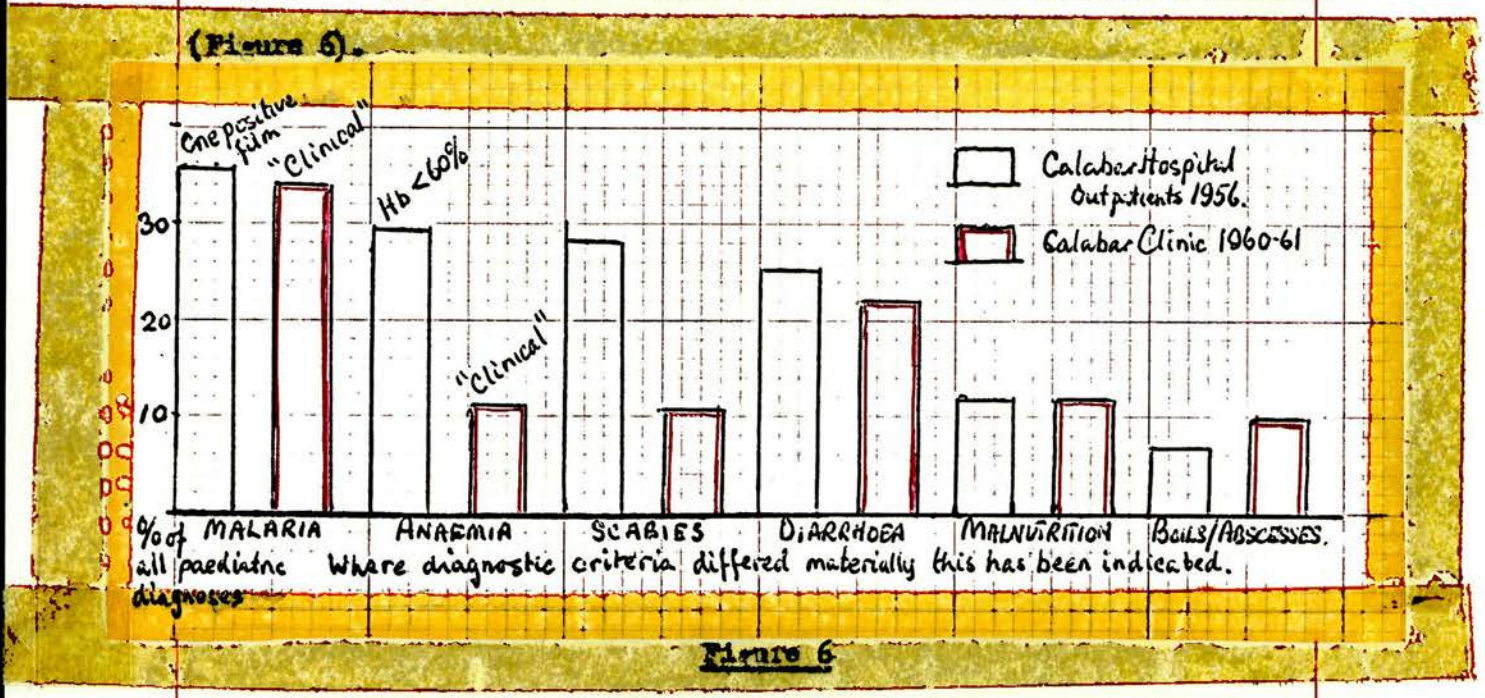


Figure 6

Comparison between Calabar hospital out-patients and Calabar general practice.

Specific Paediatric Diagnoses

The more important diagnostic groupings itemised in Table VIII will be dealt with seriatim.

Malaria: Since few of the children treated as cases of malaria had the diagnosis confirmed by a blood film, it is not suggested that the diagnosis in all cases was a cast-iron one. It was not. As conditions were, are, and are likely to remain in most Nigerian general practices in the foreseeable future, it was not, is not, and probably will not be feasible in the vast majority of cases to obtain

laboratory confirmation of the clinical diagnosis. A child comes, or is brought, with a complaint of fever. Immediate treatment is demanded, and is indeed often urgently necessary. If, on clinical grounds, it is considered that the child has malaria, then it would be as unreasonable and dangerous to withhold treatment until a blood film is examined, as it would be in cases of clinical pneumonia to refrain from giving antibiotics until sensitivity tests had been performed. Though for the purpose of statistical analysis and comparison such lack of confirmation may well be a pity, from the practical point of view it is doubtful if laboratory confirmation of malaria in endemic areas such as Calabar, is at present any more valuable than that of, for example, influenza in temperate climates. Though it might be puristically more acceptable to have labelled all unconfirmed cases as "pyrexia of unknown origin", in this area it would have been realistically much less accurate. In such circumstances clinical experience would seem to be a reasonably effective practical substitute for laboratory findings in the interpretative component of the diagnostic process.

Of the children under 10, 541 (45.6 %) presented with a complaint of fever, and of these a total of 436 (36.8 % of this age group) were clinically presumed to have malaria and were treated as such. None of these children were in the habit of taking prophylactic antimalarials. No estimate was made of the spleen rate in the children.

The seasonal variation in the prevalence of presumed malaria has probably less significance in an old-established urban community such as Calabar, than in a rural environment, but is recorded in Figure 7.

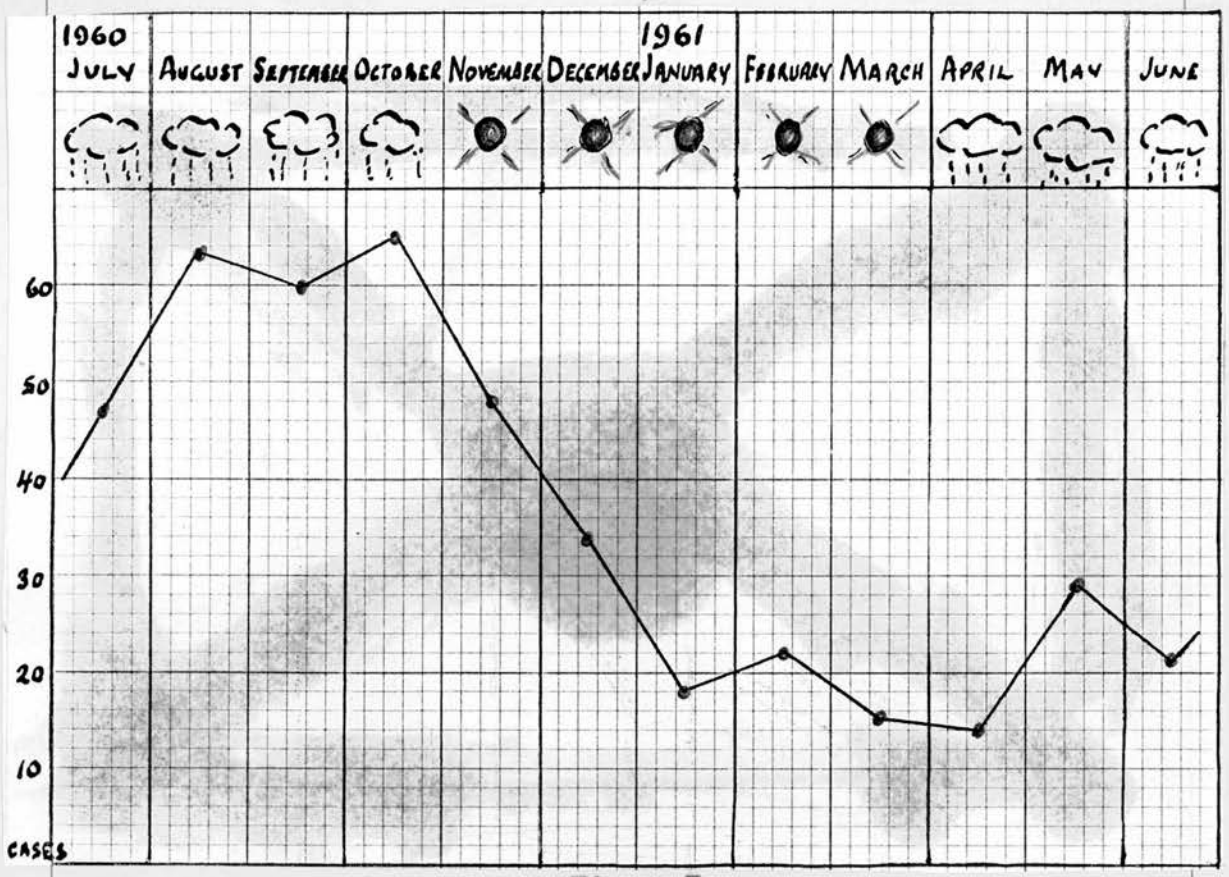


Figure 7

Malaria : seasonal prevalence.

Diarrhoeal Disease: 232 patients under 10 years of age were diagnosed as suffering from diarrhoeal disease, which was defined as "three or more soft or liquid stools within twelve hours, or a single soft or liquid stool containing blood, pus or mucus".[29] The diagnosis was thus a clinical one, dependent almost entirely on the patient's history. This figure represented 19.6 % of the total patients in this age-group, but the more accurate picture of age-prevalence which is given in Table X supports the opinion of Jelliffe[30] and others[31,32] that this disease, or group of diseases, is of prime importance in the child between 1 and 2 years of age, that is, during the latter part of the breast-feeding period and at weaning.

TABLE X

Diarrhoeal Disease : prevalence by age-groups

Age	0 < 1	1 < 2	2 < 5	5 < 10	All ages up to 10
	No. %	No. %	No. %	No. %	No. %
Diarrhoeal Disease	54 23.3	111 47.5	50 21.6	17 7.9	232 19.6

The importance and interest of this disease in young children in the tropics have two facets, one aetiological and the second prognostic. So long as the inevitable limitations of the general practitioner's field of operation and vision are appreciated, it may well be that he can contribute to a not inconsiderable degree to the knowledge of this disease, and to the solution of its many problems.

Aetiology: It was not feasible, as can be appreciated, to attempt identification of any intestinal pathogen, and indeed, the usefulness in these circumstances of such identification is at least questionable, since the treatment is in most cases symptomatic and the preventive measures non-specific. Moreover, in large-scale investigations of "infantile diarrhoea" in tropical countries, a presumably culpable pathogen has been isolated in only 20 % to 40 % of cases.[31,33,34,35]

Neither was any detailed investigation possible into the feeding habits of the infants, though it is well-known in Calabar that supplementary feeding of breast-fed infants with unboiled water and cassava flour is common. Similar habits, which may be of like aetiological significance, have been recorded from Egypt and Ethiopia,[36] among many other countries.

The standard of environmental hygiene in Calabar is low by Western European standards - the bucket latrine being by far the

commonest "authorised" method of excreta disposal - but it is considerably above that obtaining in most other parts of West Africa, rural or urban.

Of some aetiological interest is the association of diarrhoea with other conditions - Table XI.

TABLE XI

Conditions associated with Diarrhoeal Disease in children: actual numbers of patients

	AGE			
	0 2	2 5	5 10	Total
Associated Conditions				
Chronic Suppurative Otitis Media	2	5	-	7
Bronchitis and Bronchopneumonia	20	3	2	25
Malnutrition	6	6	4	16

It is not suggested that this association is necessarily causal in respect of any of the conditions, nor would it be within the competence of a study such as this to endeavour to establish any such causative relationship. The association is merely noted here, and will be discussed in a little more detail in the section devoted to treatment.

Some seasonal variation in the prevalence of diarrhoeal disease was noted (Figure 8) but it was not considered that this variation had any measurable aetiological significance.

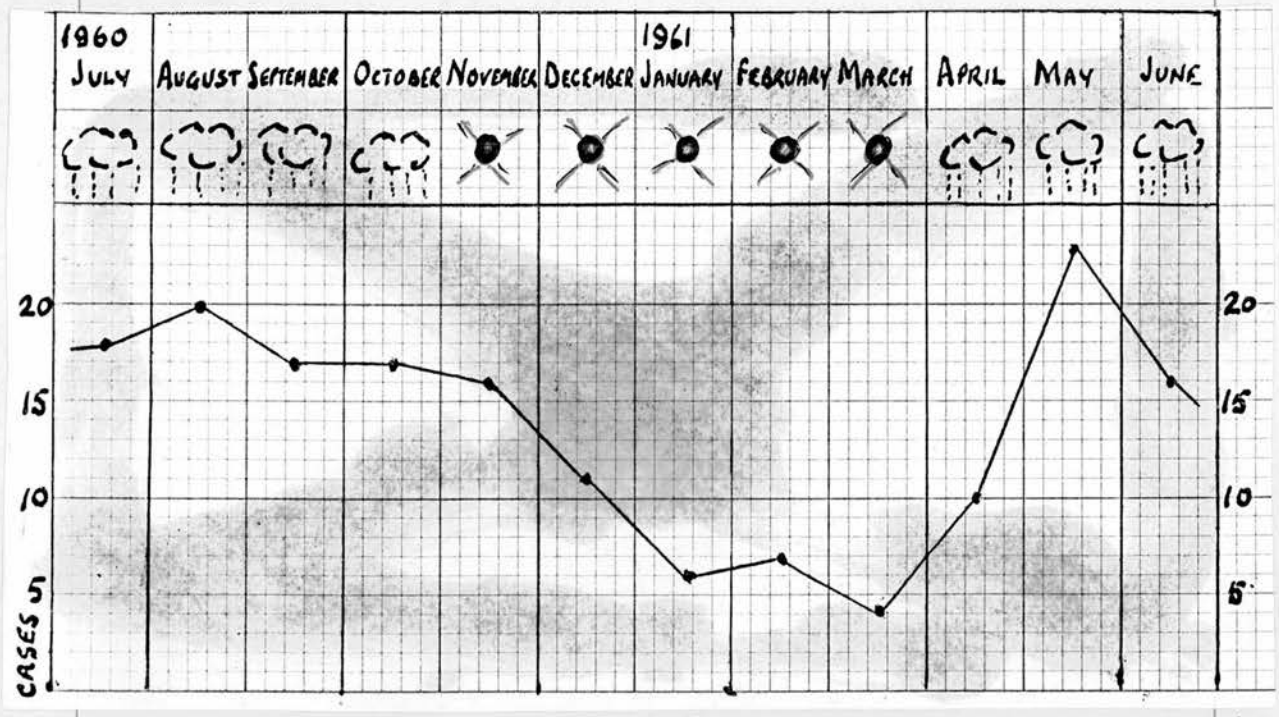


Figure 8

Diarrhoeal disease : seasonal prevalence.

One final factor of considerable local aetiological significance must be recorded. In Calabar market, one omnipresent item, for which there is always ready sale, is the Higginson syringe. This is widely used for enemata by mothers for the relief of so-called "constipation" in infants. That such indiscriminate use may be a mechanical factor in the precipitation of a proportion of episodes of diarrhoeal disease, would appear to be a reasonable supposition, but no figures or other concrete evidence can be produced from this study, or found elsewhere, to substantiate this hypothesis.

No other possible aetiological factors have been investigated, nor does it appear likely in the present state of our knowledge that any other factors are of common aetiological significance.

With regard to the severity of the disease little can, in this context, be usefully recorded other than that it varied in degree from moderately severe to apparently lethal. The treatment in general practice will be dealt with in Part II.

Bronchial and Pulmonary Infection

There were only 3 cases of primary pulmonary tuberculosis among the children, and this section is therefore devoted to a short consideration of non-tuberculous bronchitis, bronchopneumonia and lobar pneumonia. It is not suggested that there is any real significance in the separation of these three diagnoses. Aetiology, epidemiology and treatment are likely to be the same, and in any event clinical differentiation in many cases is difficult or impossible. Only with regard to prognosis is such separation significant, most of the pneumonia cases, of whatever type, being classed as "serious", compared with none of the prognostically less momentous bronchitis.

Table XII shows the age distribution of these three respiratory diseases in children, the adult figures being given for comparison.

TABLE XII

Lower Respiratory Infection : Numbers by Age

Age	0 < 2	2 < 5	5 < 10	20 < 45	>45
Total No. of Patients	601	371	214	1540	417
No. with acute bronchitis	72	37	20	11	5
No. with broncho-pneumonia	18	1	2	-	-
No. with lobar pneumonia	22	7	9	3	1
Total lower respiratory infection	112	45	31	14	6

The histogram in Figure 10 emphasises the importance of this disease-group in children compared with adults.

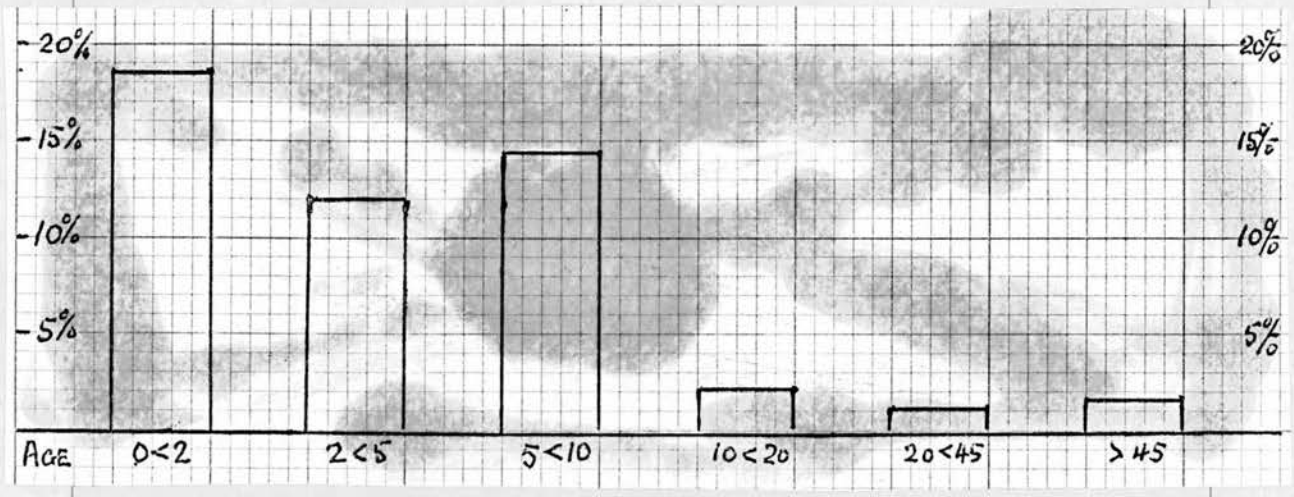


Figure 10

Lower Respiratory Infection shown as a percentage of all diagnoses.

Of possible aetiological factors, note was made only of the influence of previous measles (p.57) and of climate. Though in this study there appears to be an increased prevalence during the latter part of the rainy season and the beginning of the dry season (Figure 11) the numbers involved are too small to suggest that those findings constitute a contradiction to those of Gans[27] who found no significant seasonal variation.

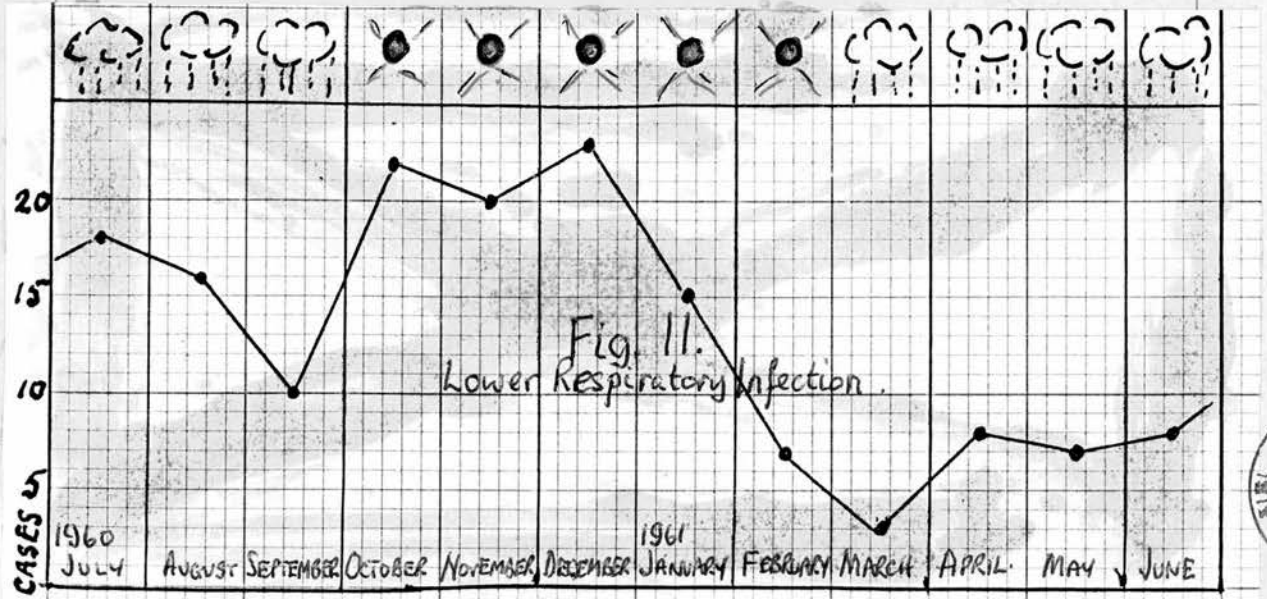


Fig. 11.
Lower Respiratory Infection.

Deficiency Diseases

These are broadly grouped into ariboflavinosis, general undernourishment and kwashiorkor. Anaemia as a diagnosis is noted briefly on page 87.

Ariboflavinosis: The criteria for this diagnosis were glossitis and angular stomatitis in combination, with or without a scaly dermatosis. General nutritional deficiency was recorded only when the child concerned was obviously grossly undersized and/or underweight.

For a diagnosis of Kwashiorkor the criteria laid down by Williams[36,37] and Dean,[38] among others, were accepted. These were oedema, dermatosis, low weight, apathy, dyspigmentation of the hair and diarrhoea. The last two varied considerably in degree and were not always present.

Notwithstanding the fact that Calabar Division is a relatively well-to-do area and that sources of both animal and vegetable protein are plentiful, 21 cases of established kwashiorkor and 132 cases of other nutritional deficiency (excluding anaemia) were encountered among the 1,186 children under 10 years of age - Table XIII.

Table XIII

Deficiency Diseases in Children

Age	0 < 2		2 < 5		5 < 10		All ages under 10	
	No.	%	No.	%	No.	%	No.	%
Total in age group	601	100	371	100	214	100	1186	100
Ariboflavinosis	28	4.7	25	6.7	11	5.1	64	5.4
General nutritional deficiency	35	5.8	17	4.6	16	7.5	68	5.7
Kwashiorkor	12	2.0	7	1.9	2	0.9	21	1.8

This prevalence of severe deficiency disease represents only the extreme tip of the iceberg, the submerged part of which is the unknown proportion of children who exist on the borderline of protein malnutrition, any of whom by an intercurrent infection such as measles may be precipitated into frank kwashiorkor. (Sai[39]). Jelliffe[40] also stresses the probability that most children in the poorer classes in such areas suffer from latent kwashiorkor and that this applies also to children of African ancestry in the Caribbean.[41]

It is not possible in this context to estimate accurately the relative importance of ignorance and poverty in the aetiology of malnutrition in Calabar, and this indeed has proved difficult in more sophisticated studies. While on the one hand the basic labourer's wage (1960) of 5/-d. per day in Calabar town did not leave much margin for unforeseen expenditure, on the other hand most families grow at least one root crop, or cereal and some vegetables, all of which are also plentiful and cheap in the various markets. In such a community there is little or no unemployment, and with a density of population in the Division of less than 50 per square mile, no land hunger. Fish of many types, including imported stockfish, are widely used throughout, and even meat - beef, deer, goat, monkey and "cutting-grass" - is not beyond the means, for occasional use at least, of the ordinary family.

These facts would imply that in Calabar, as Williams,[42] Garrows[43] and others[44] have suggested in other areas, ignorance is more important than economic factors in the aetiology of protein malnutrition. Such ignorance is, however, liable to be more prevalent and more dangerous among the poorer folk. For this reason it is likely that few cases of severe nutritional deficiency will be found in the records of most general practitioners in tropical countries. Stamm,[14] in

the report of his Jamaican practice already referred to, records that out of 1433 patients seen in the course of six months only 140 were children and none of these were malnourished, "a fact possibly due to the absence of the very poor from the patients of a general practitioner".

For only 9 of the kwashiorkor patients was a previous history of measles (7), chickenpox (1) or whooping cough (1) volunteered, but since no specific effort was made to elicit such a history, it is certain that the proportion in whom measles was of aetiological significance, was considerably higher, as might be expected from the findings of Morley et al.[45]

Scabies and Dermatitis

In a few cases a primary skin disease, especially scabies, may have been the portal of entry of pyogenic infection in debilitated children. Otherwise the principal reasons for the inclusion here of scabies and dermatitis are their prevalence among children (Table XIV) and, in contrast, the scarcity of fungal infections of the skin compared with their relative prevalence in adults.

Though most skin conditions are rightly thought to be trivial in comparison with the heavy disease load from other causes, they nevertheless bulk large in the clientèle of general practitioners and hospital out-patient departments. The social problems they pose and the total time spent in their treatment is out of all proportion to their seriousness. Moreover, the percentages of scabies at least are likely to be considerably less than the true prevalence rates since Dean,[28] in a small survey in the same area, found 28% of pre-school children to be infected, compared with 10% in this study. Yet skin diseases are given scant attention in the literature and even less in the field.

TABLE XIV

SKIN DISEASES : PREVALENCE

AGE	0 < 2		2 < 5		5 < 10		10 < 15		15 < 20		20 < 45		>45		All ages	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total all age groups	601	100	371	100	214	100	82	100	100	100	1547	100	417	100	3332	100
Scabies	57	9.5	42	11.2	25	11.7	6	7.3	4	4.0	31	2.0	1	0.2	166	5.0
Dermatitis	36	6.0	31	8.35	11	5.1	6	7.3	2	2.0	22	1.4	2	0.5	110	3.3
Fungal Infections	5	0.8	1	0.3	3	1.4	2	2.4	1	1.0	24	1.55	11	2.6	47	1.4
	98		74		39		14		7		77		14		323	

Infectious Diseases

Measles was was diagnosed in 27 out of 1186 children under 10. This small percentage (2.3 %) is no indication of the total prevalence of this disease. Nearly half (12 out of the 27) of these children were brought for attention because of a complication of the disease, and in general it was exceptional for uncomplicated measles to be brought to a doctor since most mothers appeared to be aware that it was a self-limiting disease. In the cases of a further 18 children a recent history of measles was volunteered by the mother.

Even this total figure of 45 (3.8 % of all the children under 10 consulting in the course of a year), gives no reliable impression of the true prevalence of the disease since no attempt was made by questioning to elicit any previous history of measles, and only those parents who attributed subsequent illness to measles volunteered a history of it.

Morley[46] considers that about three-quarters of the child population in Nigeria suffer from measles before they reach the age of 5 and there appears to be no particular reason to suppose that the disease is any less prevalent in the Calabar area. The same author has noted the earlier age-incidence of measles in West Africa, and these Calabar figures, small though they are, support the view that the disease is not only more prevalent under the age of 2, but is liable to more potentially dangerous complications. A similar situation has been reported in India (Taneija et al.,[47] Ghosh and Dhett.[48]).

Though from the nature of general practice it is impossible to make any estimate of the mortality of measles in this part of the world, there is no doubt, with the experience of this clinic in mind,

TABLE XV

MEASLES : NO. OF CASES

Ages	0 < 2	2 < 5	5 < 10	TOTAL
Measles alone	11	2	2	15
Diarrhoea + measles	1	2	-	3
Otitis Media + measles	-	1	-	1
Pneumonia/Bronchitis + measles	8	-	-	8
Measles followed by clinical protein malnutrition	4	3		
Measles followed by otitis media	-	1	-	1
Measles followed by Pneumonia	7	-	-	7
Measles followed by Diarrhoea	1	2	-	
	32	11	2	

that measles is still one of the most dangerous diseases in the area. Morley,[46] Gans[27] and Senecal et al.,[49] referring to Ilesha (Nigeria), Lagos and Senegal respectively, estimated mortality from measles at between 3% and 23%, though the figures are not directly comparable with each other since one study (Gans) relates wholly to hospital admissions. Nevertheless, since in the present general practice series 24 children, 53% of the patients suffering from or having recently suffered from measles, were considered to be seriously ill, it would appear a not unreasonable assumption that the mortality rate in Calabar lies somewhere between the wide limits quoted above.

Pertussis. Only 9 children under 10 years of age presented with frank whooping cough and none of these were seriously ill. No estimate can be made of the real prevalence of the disease nor of the frequency of its pulmonary complications. Gans[27] found the disease in Lagos to be relatively rare and mild. On the other hand death or permanent lung damage may be more common in debilitated infants than has hitherto been suspected in the tropical environment. Few cases find their way to hospital, and until recently it may be that neither parents nor even doctors were fully aware of the evil potentialities of this disease. It is perhaps a slight indication of the dawning realisation among the Nigerian population of the possibilities of serious sequelae that one mother of 5 children, the family being by no means in the sophisticated class, brought them to the clinic for no other reason than for whooping cough immunization.

Varicella. Only 8 children presented with chickenpox. In addition the mother of one child with kwashiorkor gave a history of recent chickenpox. Varicella is therefore evidently of comparatively

little importance in Calabar except from the point of view of its possible connection with malnutrition and its confusion with smallpox. In passing it might be noted here that only one adult case of Herpes Zoster was seen, and he gave a history of family contact with chickenpox.

Tetanus. Although only one case of neonatal tetanus - and no other types of the disease - was diagnosed during the year, the fact that the mortality rate is so high - Gans[27] and McGregor[50] quoted 85 % and 61 % in their respective series - gives the neonatal form of the disease an importance out of all proportion to its incidence rate. Even this latter rate is unknown in most communities of the same type as Calabar since death may supervene so rapidly that even hospital admission rates present a very incomplete picture. General practice figures must be even more unreliable. The present position in Africa, where neonatal tetanus is by far the commonest type of the disease seen, is reminiscent of that obtaining in some remote communities in Scotland 50 or more years ago.[51] Aetiological factors are also very similar, the living conditions in St. Kilda at the end of last century, with the domestic and farm animals being housed in the same earthen-floored "but and ben" as the mother and infant, bearing a very strong resemblance to the conditions in rural Nigeria to-day. The use of cow dung as a cord dressing, mentioned by Jelliffe,[52] is not an aetiological factor in Calabar, and this is in agreement with the findings of Baxter-Grillo and Lesi[53] in Ibadan.

Congenital anomalies and Deformities. Though this group of conditions is numerically small - only 35 patients (2.9 %) under 10 years of age - it is important both because of the severe handicap which is entailed by most of these anomalies if untreated, and since

the majority are in fact preventable or treatable. The majority of the not inconsiderable number of professional beggars seen in the large towns and cities of the Southern part of Nigeria in 1960 were suffering from deformities of the lower limbs, nearly all of which were remediable if diagnosed and treated early. It is indeed true that special facilities for orthopaedic and plastic surgery are lacking in all but a very few centres in Nigeria, but a proportion of the anomalies seen can well be remedied in ordinary general hospitals or even general practitioners' consulting rooms. It is therefore increasingly necessary that the general practitioner should recognise such cases and should be able to prevent or treat some of them himself (page 116). The malformations seen have therefore been divided into two categories: conditions remediable or preventable in non-specialist hospitals, and the remainder (Table XVI, page 61).

Suppurative Otitis Media. In nearly all cases this was merely an incident in the course of other illnesses - measles, malnutrition and other pyogenic conditions were its most frequent associates. But it was nevertheless an important incident both because of the frequent consequent deafness and since the condition was often very stubborn and difficult to clear completely. Had it been possible to have culture and sensitivity tests performed, there appears little doubt that staphylococci resistant not only to penicillin but to other antibiotics would have been identified, while on clinical grounds infection with b. pyocyaneus was present in at least 5 cases. Table XVII, page 62, indicates the age-specific prevalence of Suppurative Otitis Media and shows its comparative frequency among children.

Perhaps enough has been written about paediatric problems to

TABLE XVI

CONGENITAL ANOMALIES AND DEFORMITIES

AGE GROUP	0 < 2	2 < 5	5 < 10	Total under 10	10 < 15	15 < 20	Total under 20
Remediable:							
Severe knock knee or bow leg	-	6	1	7	1	1	9
Talipes equinovarus	3	-	-	3	-	-	3
Pes Equinus	1	-	-	1	-	-	1
Congenital dislocation of hip	2	-	1	3	-	-	3
Hypospadias	1	-	-	1	-	-	1
Other remedial anomalies	2	2	1	5	3	2	10
Non-remediable:							
Microcephaly & hydrocephalus	4	-	-	4	-	-	4
Spastic diplegia	3	-	1	4	-	-	4
Other non-remediable anomalies	1	3	3	7	-	1	8
				35			43

TABLE XVII

OTITIS MEDIA

AGES	0 < 2	2 < 5	5 < 10	10 < 15	15 < 20	20 < 45	>45	All ages
Total No. of patients	601	371	314	32	100	1547	417	3332
No. of patients with Otitis Media	14	22	5	4	-	14	2	61

No estimate was made of the proportion of the 61 cases who were deaf as a result of the infection.

substantiate two theses:

a) Calabar private practice has this much in common with general practice in Britain, that the problems of disease in childhood, while rarely entirely distinct from those in adult life, carry nevertheless such a different emphasis that they are worthy of being dealt with separately. Not only is the emphasis different but so are the methods of dealing with the problems, particularly in the sphere of preventive medicine. These methods will be considered in Part 2.

b) The paediatric problems in Calabar are, with the exception of malaria, not peculiarly "tropical diseases" as such. This view is in entire agreement with that of Gang in hospital practice, who found that the paediatrician working in Lagos, a city whose medical problems in general are closely similar to those in Calabar, "does not meet the most spectacular illnesses described in textbooks of tropical medicine".[27] As he has suggested, emphasis of this fact should be of assistance to schools of tropical medicine in temperate climates.

CHAPTER 5

ADULT DISEASE PATTERNS

It is not possible to generalise in regard to "the" disease pattern in adults to the same extent as in considering paediatric problems. There is indeed a general difference between the disease patterns in childhood and in adult life, but while the former may be viewed as a single pattern, albeit one with many facets, the adult patterns of disease are complicated by internal differences of age, sex and environment.

The only broad generalisation that has been made is concerned with the seriousness of disease. Notwithstanding a definite bias against accepting the less serious adult cases - see page 20 above - only 13.3% of adults compared with 26.4% children, were considered to be seriously ill. This is, of course, as has been stated, a subjective impression with all the pitfalls that such impressions involve.

The remaining 86.7% attended with illnesses which, while they might not be trivial in the patient's estimation, carried with them no danger to life and no serious disruption of the patient's day to day activities.

It would therefore appear more enlightening to consider separately the diagnoses of males and females, and of patients under and over an arbitrary and approximate age of 45. This age was chosen, in the female for obvious reasons, and since in Calabar in 1960 this was about the age when degenerative changes often began to manifest themselves in both sexes. It should be reiterated however, that this age-division

is only approximate: generally speaking the older the patient the more inaccurate was the stated age likely to be, and the more often was the age quite unknown. It might therefore happen not infrequently that the age was estimated at over 45 because of degenerative changes andthis is certainly a possible source of error especially near the junction of the two age groups.

Table XVII gives the principal diagnoses for all adults.

Five of the commonest diagnostic groups among children - bronchial and pulmonary infection, scabies, dermatitis, infectious diseases (except tuberculosis) and deficiency disease (except isolated ariboflavinosis) - together accounted for 40.6% of the sickness in children and adolescents, while in adults the corresponding percentage for these groups was only 6.7%.

With the exception of lower respiratory infection these differences in incidence are not worthy of more comment than has already been made in discussion of the childhood disease pattern. However, the figure of 1.1% of adults suffering from the pneumonias or bronchitis is so exceedingly low compared with corresponding figures from practice in temperate climates[7] (see page 38), that it is perhaps worthy of some emphasis. No reliable corresponding figures are available for hospital outpatients or from general practice in Africa, and hospital inpatient statistics such as those of Lauckner[54] and others[55,56] are not comparable. The almost complete absence of chronic bronchitis in tropical hospital statistics is however, significant, and the experience in this practice wholly confirms this picture since not one single case, either of chronic bronchitis or its concomitant or consequent ills, was seen.

On the other hand malaria, which accounted for 36.8% of childhood

TABLE XVII

ADULT DISEASE PATTERN

	Age 20< 45				Age > 45			
	Male		Female		Male		Female	
Total No. of Patients	597		950		167		250	
Percentage with various diseases:	No.	%	No.	%	No.	%	No.	%
Malaria	126	21.4	315	33.2	40	24.0	81	32.4
Rheumatism (muscular)	68	11.5	86	9.1	29	17.4	69	27.6
Ariboflavinosis	54	9.2	82	8.6	12	7.2	28	11.2
Mental Disorders	39	6.6	39	4.1	4	2.7	2	0.8
Hypertension	5	0.8	2	0.2	11	6.6	21	8.8
Hernia*	18	3.0	8	0.8	10	6.0	8	3.2
Tuberculosis (Pulmonary)	11	1.9	-	0.	-	0	-	0
Obesity	1	0	42	4.4	7	4.2	37	14.8
Gastritis etc.	20	3.4	11	1.2	4	2.4	4	1.6
Diarrhoea	-	0	21	2.2	1	0	4	1.6
Gonorrhoea	48	8.1	1	0	15	9.0	1	0.4
Sterility, male	19	3.2	-	-	1	0	-	-
Impotence	23	3.9	-	-	6	3.6	-	-
Disorders of menstruation	-	-	145	15.3	-	-	5	2.0
Menopause	-	-	31	3.3	-	-	45	18.0
Subfertility, female	-	-	110	11.6	-	-	1	0.4
Other Gynaecological	-	-	146	15.3	-	-	10	4.0
Threatened abortion	-	-	5	0.5	-	-	-	-
Other abnormalities of pregnancy	-	-	5	0.5	-	-	-	-
Normal pregnancy	-	-	110	11.6	-	-	1	0.4
All other conditions	274	45.9	374	39.4	92	55.1	100	40.0

Notes: * Herniae requiring operation only.

- Not applicable
0 nil or less than 0.25%

sickness, was almost as common in adults (28.6 %). The diagnosis of diarrhoea of unspecified aetiology, accounted for only 1.3 % of the sickness among adult patients, but the implications of this diagnosis are so important, that this group though small deserves special consideration.

Malaria

As with children, this was a clinical diagnosis only, but was probably more reliable in adults, since both the symptoms and the response to treatment were much more easily assessed. For those accustomed solely to hospital practice this lack of precision in diagnosis may be considered regrettable, but regrettable or no, it is inevitable in the present state of general practice, and indeed hospital out-patient services in West Africa (see page 45 above).

28.7 % adult patients were diagnosed as having malaria, usually on the grounds of a complaint of recurrent fever, headache and joint pains, with or without enlarged spleen, and were treated as such. There was no significant difference in prevalence between the four adult age-sex groups.

The seasonal prevalence of malaria in adults was not significantly different from that in children (Fig. 7 p.46) and this picture corresponds closely with the hospital figures for a similar area in Nigeria.[57]

Muscular Rheumatism

No general practice diagnosis in Nigeria or in Britain is more vague than "Rheumatism". Nevertheless, however unscientific this label may be, it does fulfil the purpose of providing a convenient grouping for a symptom complex that may be very real to the patient

and often may cause much incapacity.

Though the diagnosis has the additional advantage that it groups together conditions which have, by and large, the same treatment, it suffers from two major drawbacks, one clinical and one aetiological. Clinically the diagnosis includes all degrees of "rheumatism" from a mild transient fibrositis of neck or shoulder to a severe and incapacitating lumbago. No attempt has been made to differentiate between such varying degrees. Aetiologically it is impossible without time-consuming investigation to separate "straightforward" rheumatism - if one can so call a condition whose aetiology is itself so uncertain - from other causes of muscular pain and stiffness - psychoneurosis, physical strain, onchocerciasis, malingering, and so on.

As might be expected, there is a significant increase in incidence of rheumatism over the age of 45 (Table XVIII).

TABLE XVIII

AGE-SEX INCIDENCE OF MUSCULAR RHEUMATISM

Age	20 < 45				> 45			
	Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%
Muscular Rheumatism	68	11.5	86	9.1	29	17.4	69	27.6

Ariboflavinosis

176 patients over 20 years of age (9.0 % of this age group) were adjudged to be suffering from ariboflavinosis, presenting with angular stomatitis, glossitis, and dermatosis most commonly on the shins and round the nose. There was no significant difference in prevalence

between males and females or between patients under and over 45 years of age. In fact the percentage in each age-sex group was very similar - range 7.2 to 11.2.

Occasionally patients consulted because of a sore tongue, but otherwise ariboflavinosis was an incidental diagnosis in patients with other complaints.

Isolated ariboflavinosis is a comparatively trivial condition, but its apparent triviality can be over-emphasised to a dangerous degree. In the writer's experience it is in fact seldom an isolated condition but is much more commonly associated with anaemia and with protein deficiency.[56,58] Its association with hypovitaminosis - A in other areas has been noted.[59] It may therefore be a very useful indicator of more serious nutritional deficiency, and its value as such an indicator is enhanced by the ease of its clinical diagnosis.

Mental Disorders

Before making any comment at all on this diagnostic group it must be made clear that the writer has no training in the diagnosis of mental disorders, nor any amateur interest in medical psychiatry. Here diagnosis was therefore based only on some 14 years' experience of hospital and general practice in the same area. No attempt was made to make a precise psychiatric diagnosis in each case.

In general it may reasonably be assumed that patients with some minor degrees of mental disorder will have been missed and that therefore the figures and percentages quoted do not represent the true prevalence among the clinic patients. On the other hand there seems no reason to suppose that this failure to diagnose should operate more in one age-sex group than another, and the age-sex difference may

perhaps therefore be accepted as an approximately true picture.

TABLE XIX

MENTAL DISORDER, AGE/SEX DISTRIBUTION

	Ages					
	15< 20		20 < 45		> 45	
	Male	Female	Male	Female	Male	Female
No. of patients	7	-	39	39	4	2
% of total of age-sex group	11.3	0	6.6	4.1	2.4	0.8

It is clear that in this practice mental disorder had an appreciably higher prevalence in males and a tendency to affect the younger age groups, though neither of these differences are statistically significant. It is suggested that part of this preponderance among the younger males is due to the well-established frequency of mental disorder among young students and others, striving to the limits of their capacity in the competitive urban society of to-day, and divorced from the security of the (generally) rural society of their childhood.[59,60,61] No statistical evidence is adduced to support this theory but it is in general agreement with the findings of Leighton et al,[62] who concluded that among the Yoruba of Western Nigeria there was a close association between what they called 'socio cultural disintegration' and psychiatric disorder. Other possible factors in the aetiology of mental disorder in Nigerians have been examined by Lambo,[63] in particular the many religio-cultural influences which surround even the modern Nigerian all his life; Lambo again[64] and others[65] have further considered the influence of nutrition on the development of the mind, but the causation

of psychiatric illnesses in Africa is still largely an unexplored field.

Lambo and Mbanefo[66] also mention the frequency of anxiety states in childless women in the Nigerian society, and though this was not specifically investigated, it may well be that some of the 39 women of childbearing age owe their mental derangement to this cause.

Senile mental disorders were seen in only two patients, perhaps because such conditions were, with some reason, not considered by relatives to be treatable, or thought to be better treated by traditional measures. (Foster[15]). Such patients would therefore not be brought to a doctor.

Hypertension

The criteria for this diagnosis were taken to be a diastolic blood pressure of more than 100 mm. Hg., accompanied by symptoms - headache, disturbance of vision, etc. The blood pressure of a patient was recorded only when hypertension was suspected - i.e. when the clinical history was suggestive. Symptom-free hypertensives are therefore not included since they were not diagnosed. On the other hand the figures in Table XX do probably represent all those who required treatment on account of hypertension since it is doubtful if treatment for symptomless hypertension is indicated[67,68] save in the very young.

The difference in prevalence between males and females is not significant statistically.

There is however, a significant association between hypertension and obesity in the largest group of hypertensives, i.e. women over 45 (Table XXI).

TABLE XX

HYPERTENSION. AGE-SEX DISTRIBUTION

Age	20 < 45				> 45				Total over 20	
	Male		Female		Male		Female			
	No.	%	No.	%	No.	%	No.	%	No.	%
Total in each age group	597	100.0	950	100.0	167	100.0	250	100.0	1964	100.0
Patients with hypertension	5	0.8	2	0.2	11	6.6	22	8.8	40	2.0

TABLE XXI

ASSOCIATION OF HYPERTENSION WITH OBESITY

	Women over 45		
	Obesity	no Obesity	Total
Hypertension	10	12	22
No hypertension	27	201	228
Totals	37	213	250

This significant association (X^2 = 15.410, $p < .001$) is in keeping with the observations of Boynton and Todd,[69] and of Smirk.[70]

To the clinician there also appeared to be an association between hypertension and ethnic group, since there was a marked difference in its occurrence in the Efik and Ibo peoples (Table XXII).

TABLE XXII

HYPERTENSION: EFIK/IBO RATIO

	Women over 45		
	Hypertension	No Hypertension	Total
Efik	18	150	168
Ibo	3	70	73
Totals	21	220	241

This difference is not however, statistically significant (X^2 2.022, $.01 < p < .20$).

These observations nevertheless serve to illustrate one of the functions which a general practitioner can fulfil merely by accurate record keeping. He cannot, with regard to essential hypertension, offer any opinion as to whether the disease, if it is a disease, is

due to simple genetic inheritance (Platt,[71]) or if it is merely a "quantitative derivation from the norm" (Pickering).[72] But he can, by accurate diagnosis and recording, suggest possible lines of planned research such as that conducted by Morrison and Morris.[73]

For example, in the particular situation in Calabar, the Efik and Ibo peoples are of almost equal numbers, and they live intermingled in the town, in very similar home environmental conditions. Much of their diet is, however, known to be different, though increasing sophistication is bringing them closer together in this respect. Up till recently there has been a markedly different attitude to obesity since it has been actively encouraged among Efik females - again this is changing. With two populations similar in so many respects and in such convenient juxtaposition, there would seem to be a profitable field for research into many conditions of which hypertension is merely one example.

Obesity

This diagnosis was, in the majority of cases, a subsidiary one, and no hard and fast weight/height criteria were used, obesity being recorded only when it was obvious and gross. A small number of patients however, consulted on account of their obesity; this in itself was, in this part of Africa, a recent phenomenon and one of considerable import for the future. Traditionally the Efik girl spent up to two years in a "fattening-house" immediately before marriage, and though this custom has been slowly dying out in the past few decades, its influence is still seen in the preponderance of obesity in middle-aged and elderly women. And even modern girls of traditionally-minded families still follow this custom, albeit for a period of months or

weeks rather than years.

The whole subject of obesity in such a community does not appear to have been investigated and would seem to repay study both from the medical and social anthropological standpoint. The association of obesity with hypertension is but one example of the medical interest of the condition. (Table XXIII, page 76).

Tuberculosis

Eleven cases of asult pulmonary tuberculosis, all males between 20 and 45, were seen, and two cases of vertebral tubercle, both males, one under and one over 45 years of age. Here and here only, was there good liaison with both X-ray and laboratory facilities in hospital. Moreover, since all suspected cases were sent for these examinations and all 13 cases were confirmed this may represent a fairly reliable picture of the occurrence of tuberculosis among the adult clinic clientele - 0.56% of all adult patients.

On the other hand it is not possible from these figures to make any estimate of the prevalence of tuberculosis in the total population of Calabar. Adult tuberculosis appears to be commoner in males than females in many tropical countries,[74,75,76] and "its incidence is believed to be spreading because of /sic/ the rapid expansion of the....towns".[77,38] But there are too many imponderables to enable any firm conclusions to be drawn from the small numbers of this clinic. Reference will be made to the domiciliary treatment of tuberculosis in Part II of this study.

Hernia

Only those herniae for which operation was recommended were

TABLE XXIII

OBESITY

	20 < 45				> 45				All over 20			
	Male		Female		Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total in each age group	597	100.0	950	100.0	167	100.0	250	100.0	764	100.0	1200	100.0
Patients with obesity	1		42	4.4	7	4.2	37	14.8	8	1.0	79	6.6

were included (Table XXIV). Small umbilical herniae, so common in this area, were not noted.

TABLE XXIV

HERNIA

Age	20 < 45		> 45		
	Male	Female	Male	Female	All over 20
Hernia Inguinal	14	3	8	3	28
Femoral	1	-	-	1	2
Umbilical	-	-	-	-	-
Epigastric	2	1	2	1	6
Others	1	4	-	3	8
	18	8	10	8	44

It is probably that the majority of these patients consulted because they hoped for operation. It would not be expected that a "normal" general practice would attract so many hernia patients who would, for the most part, go direct to hospital.

Dyspepsia/Gastritis/Peptic Ulcer

No attempt was made to separate these three diagnoses, and this small group of 35 patients, (1.7 % of the total), suffered in fact from a variety of conditions ranging from acute gastritis following alcoholic excess, to chronic or recurrent epigastric pain and tenderness very strongly suggestive of peptic ulcer. Though perhaps statistically significant, the greater incidence of this group of conditions in men between 20 and 45 is of little or no clinical significance in view of

the wide variety of presumptive diagnoses included, and the small total number of cases.

TABLE XXV

INCIDENCE OF DYSPEPSIA ETC.

Ages	20 < 45				> 45			
	Male		Female		Male		Female	
	No.	%	No.	%	No.	%	No.	%
Dyspepsia etc.	20	3.4	11	1.2	4	2.4	4	1.6

It is impossible to make any legitimate comparison based on these figures between the incidence of such diagnoses in Calabar and in Britain, except to note that dyspeptic disorders in this part of Nigeria form a much smaller part of a general practitioner's work than would be the case in U.K. It is relevant to specify "this part of Nigeria" since the experiences of others in different parts of the country do not coincide with these, particularly in respect of the frequency of peptic ulceration.[78] Unpublished figures[79] from elsewhere in Eastern Nigeria and the writer's own hospital experience do however, confirm this impression of the rarity of peptic ulceration in this area. No theory is advanced as to why this should be; research in this sphere, especially with regard to dietary variations, might well be profitable.

Diarrhoea

Only 26 - 1.3% of adult patients were diagnosed as suffering from non-specific diarrhoea, the criterion being the WHO definition,[28,29] "Two or more soft or liquid stools within 12 hours, or a single soft

or liquid stool containing blood, pus or mucus". But even this small percentage would have been reduced almost to disappearing point if laboratory facilities had been freely available.

If enteric infection/infestation is considered as an entity, as from many epidemiological and aetiological aspects it is, then to the 26 diarrhoea patients must be added 10 (0.5%) with obvious helminthiasis, and 38 (1.9%) who, in addition to a complaint of abdominal pain had also fever and tenderness over the liver area, and were therefore labelled "?amoebiasis" (q.v.).

The numbers in this diagnostic group were so small and the diagnosis itself so imprecise from a pathological point of view, that the differences in incidence between the four age-sex groups had, in the writer's opinion no significance.

It is perhaps worthwhile however, to emphasise not only the small proportion of cases of adult diarrhoea - 1.3% - vis à vis the 19.6% of child patients with the same diagnosis; but also the fact that the total number of adults with symptomatic enteric infection/infestation - 74 (3.7%) - is surprisingly low considering the endemicity of both forms of dysentery and typhoid fever, and the low standard of public hygiene compared with Western Europe.

Gonorrhoea

Since laboratory facilities were not in general available, no attempt was made to diagnose female gonorrhoea, and the cases of male gonorrhoea here recorded are in fact those of either acute purulent urethritis or recurrent urethritis with or without stricture (Table XXVI). Though these were treated as gonorrhoea it is realised that this diagnosis is defensible neither statistically nor legally.

TABLE XXVI

MALE GONORRHOEA

	Males			
Ages	20 < 45		>45	
	No.	%	No.	%
Gonorrhoea	48	8.1	15	9.0

Of the 15 cases over 45 years of age, seven were chronic with varying degrees of stricture.

It would certainly have been more accurate to have recorded all these cases as "urethritis" acute or chronic, but it seemed, and seems, more realistic to call them gonorrhoea. The World Health Organisation has accepted this position in stating that "where no well trained personnel were available or where trained assistant personnel could not be supervised in a satisfactory manner, the diagnosis of gonococcal infection must depend on clinical criteria".[80] Drawing again from past experience of hospital practice where laboratory facilities were available and were always used for such cases (particularly because of possible medico-legal implications), it is suggested that nearly all of the patients diagnosed as gonorrhoea had in fact gonococcal infections. This supposition is also supported by the response to treatment noted, but it is fair to record that it does not agree with the experience of Parrino[81] who recorded only 51.0% of smears positive for gonococci out of 3757 cases of male urethritis.

No cases of syphilis or its sequelae were seen during the year with the exception of one patient with an aneurysm probably of the R. subclavian artery.

Male Sterility

Twenty cases of male sterility, 19 of them in men under 45, were confirmed by microscopical examination of the semen which showed azoospermia. There is no doubt whatever that, had it been possible to examine the semen of all husbands who accused their wives of infertility, a very much larger number of cases of male sterility would have been found. In the event, only those husbands who were so enlightened as to consider that they might be "to blame" were examined.

This figure of 20 cases of male sterility should also therefore be considered in conjunction with the figures of 111 unproved cases of "female sterility" (see below).

In no case was the cause of the sterility ascertained but the majority of cases gave a history of chronic gonorrhoea.

Impotence

Perhaps this should be recorded as a psychiatric diagnosis. It was noted simply on the basis of the patient's own story. There were 23 cases in men under 45 (3.9 %) and six in men over 45 (3.6 %).

This is an important diagnosis in the African milieu both because of its social implications and since treatment is for the most part at present empirical and ineffective.

Female Subfertility

In contrast to the laboratory-confirmed diagnosis of male sterility, female subfertility was diagnosed almost wholly on the basis of the history given by the patient. Supporting evidence was present in 7 out of the 111 recorded cases of subfertility; in these few cases

the husbands concerned had had children by other women.

This figure of 111 cases represents 11.7 % of all women of childbearing age who consulted during the year.

The diagnosis was based on a complaint[82,83] of either failure to bear any children after at least five years marriage, or a gap of at least five years since the last child, either of these in the presence of a desire for (more) children. As a first step an attempt was made to bring in the husband for examination, particularly as Harvey[84] and Walker[85] have suggested that 20 - 30 % of sterile unions may be due to male factors. If he did not appear, as happened in most cases, or if his semen showed no abnormality, then the woman was examined per vaginam. If any abnormality such as myoma uteri, was found, then this was recorded as such. If no abnormality was found then the woman was recorded arbitrarily as a case of "subfertility ? cause". This was an arbitrary decision. As has been stated (page 81) there is no doubt that if all of the husbands had been examined some of them would have evidenced azoospermia or other abnormality. There is equally no doubt that a more exhaustive examination of the woman than was practicable in the circumstances would have enabled a more precise diagnosis to be made in the majority of cases where some relevant pathology was present. In the existing circumstances however, it is difficult to see into what other diagnostic category these women could have been put. They were all anxious to have children; all apparently unable to have either any, or as many as they wanted; and no cause either in themselves or in their husbands could be demonstrated. Hence the unscientific diagnosis.

How important the physiological and psychological elements may be

as a cause of female sterility the writer is unable to assess, though Jeffcoate[85] and others have stressed this aspect. On the other hand, pathological causes of subfertility, such as chronic salpingitis from various causes, are not uncommon in this area, but are equally impossible to assess in general practice.

Yet in Nigeria where child-bearing and children are still held in such high regard there are few conditions that carry as many social implications as infertility, especially in the woman.

Whatever the future need may be for population control and family planning in a community such as Calabar, for the general practitioner the individual is his prime concern in this context. And, even when over-population in this area may become a problem, the childless couple who desire children will still legitimately claim his help and advice.

Disorders of Menstruation

150 women suffered from various menstrual troubles of which the commonest were dysmenorrhoea (116) and menorrhagia (21). In few of these cases was any attempt made to discover any gynaecological pathology and in fact, no cause was found for any of these disorders. In some cases the diagnosis - if diagnosis it could be called - being dependent wholly on the history given by the patient, may have concealed a real complaint of subfertility.

Unsatisfactory though these diagnoses are, they bulk large in the disease pattern dealt with by the Nigerian general practitioner. Though the writer had no inclination in this direction, there is no doubt that these cases could and should be investigated at the G.P. level. Though many cases are physiological in aetiology and

presumably benefit from symptomatic or hormone therapy, in others the causes are psychological or due to some definite gross pathology. Investigation by the general practitioner should, without difficulty, separate these three aetiological factors from each other and enable accurate diagnosis to be made.

Menopause

76 women suffered from various menopausal disorders, of which the most difficult to deal with was the unwillingness of many women, especially those without children, to accept the inevitable.

Pregnancy, normal and abnormal

Twentyfive patients were recorded as threatened abortion, inevitable abortion or completed abortion, while an additional 13 gave a history of repeated abortion for which no obvious cause was found. Of the remaining 121 pregnant women who progressed to the later stages of pregnancy, 7 had bleeding during the early months, 2 suffered from hydramnios and 1 had a mild pre-eclamptic toxaemia.

There was a good maternity hospital in the town and since domiciliary visiting in connection with the clinic was not feasible, none of the pregnancies were followed up to term. The majority attended only once or twice and were then referred to the hospital antenatal clinic.

Other conditions peculiar to the Female

118 diagnoses were recorded under this heading, all except 10 being in the 20-45 age group.

The largest group consisted of 20 with leucorrhoea for which no

cause was found. It is probable that the majority were due to trichomonas, but since no bacteriological examination was performed, gonorrhoea could not be excluded in any case. Also, since only a few cases with leucorrhaea were examined per vaginam, it is likely that in some, the cause of the discharge was a cervical erosion.

Cervical erosion was in fact the diagnosis next in frequency, with 14 cases. In no case could a biopsy of the cervix be performed and it is not improbable that this diagnosis may have concealed in some cases a cervical carcinoma.

The number of women considered to have uterine myomata was 13. This was a confident diagnosis since all doubtful cases were classified as 'uterine tumour ? carcinoma'. Recent malignant change in a simple myoma could not, however, be excluded. The ill-defined uterine tumours (6 in number) were all of the body of the uterus.

There were 12 cases of tubal infection, either salpingitis or pyosalpinx (2). It may have been that these last in fact, were ovarian conditions, but this is unlikely since both gave a history of acute onset with pyrexia. It is perhaps worthy of comment that no other cases were seen where the diagnosis of ovarian tumour or cyst was considered possible. Prolapse of varying degrees (7 cases) and fixed retroversion (4 cases) completed the list of the more usual gynaecological conditions.

No practice in Eastern Nigeria would, however, be truly representative if it did not include some of the results of tragic midwifery. This practice was no exception and five cases of traumatic Vesico Vaginal Fistula, together with one traumatic vaginal stenosis, were seen. All the fistula cases were in a wretched state from leakage of urine. All gave a history of prolonged labour with the

eventual production of a dead child. All except one could possibly have been closed by local repair in several stages. (Moir).[87,88] The remaining one was so large that ureteric transplant was almost inevitable. The case of vaginal stenosis was almost complete; recanalisation of the vagina was no doubt possible but would have been a very prolonged procedure of doubtful eventual benefit.

The foregoing diseases accounted for the great majority of the sickness in the clinic patients, but a number of other conditions are worthy of short mention.

Yaws

Only two cases of obvious clinical yaws were seen among the 1,186 children under 10, and only 8 adult patients with osteitis or other late manifestation of the disease. The virtual disappearance from the Calabar area of this once omnipresent disease would appear to be the result not of any formal eradication campaign, but of the fact that since at least as long ago as 1934 dramatic results were obtained from "bismuth treatment"[89] administered not only in hospitals, but in village dispensaries. Indeed the rapid visible disappearance of yaws lesions following bismuth (later followed by organic arsenical and then penicillin) injections is almost certainly the basis for the inordinate faith of the Calabar, and Eastern Nigerian

people generally, in the "power" of the injection as such.

Helminthiasis

Since laboratory examination of the faeces was not performed in any patient, the only cases of helminthiasis recorded were those where visible worms, mostly ascaris, were passed. The proportion of patients here recorded as suffering from intestinal helminthiasis has therefore no known relation to the amount of infestation in the total clinic patients, let alone in the whole population of the area. It is not possible for a general practitioner, unless laboratory facilities are available, to make any diagnosis of ankylostomiasis. Yet the small survey of 200 pre-school children in Calabar already mentioned revealed that 38 % of children of this age-group might be expected to suffer from this debilitating condition.

In fact in this clinic all children who appeared to be anaemic or who were undernourished, were given an anthelmintic (usually piperazine) on empirical grounds, but such patients were not of course, recorded as helminthiasis.

Anaemia

However feasible a general practitioner in Britain may find haemoglobin estimation or other methods of determining the presence of anaemia, no such examinations were possible in the conditions of this clinic. The Tallquist method would have been possible, but the writer had more faith in his own clinical judgment than in this highly inaccurate method. It has been said that "the diagnosis of the presence of anaemia depends on a high index of clinical suspicion."[90] While this assertion has more than a grain of truth in it, it would

have been desirable in such a clinic to have been able to obtain some indication of the degree of anaemia present, especially in order to assess progress. The possibilities in this connection will be mentioned later (page 135).

The diagnosis here recorded as anaemia is based therefore purely on clinical judgment, principally the appearance of the gingival mucous membrane and the nail beds. It is therefore very rough and ready and no estimate of the degree of anaemia was made. In general however, anaemia was severe before it was recorded.

A total of 257 patients were recorded as suffering from anaemia. Of these 135 were under the age of 10 and 78 were women of child-bearing age. In view of the unscientific nature of the diagnosis no definite conclusions can be drawn from these figures but they do perhaps give an indication of how frequently the diagnosis and treatment of anaemia recurs in general practice in Nigeria, especially in what might be called the most vulnerable age/sex groups.

Tumours

The simple tumours, 25 in number, included 13 myomata uteri, and the remaining 12 were of little significance, subcutaneous lipomata and the like.

The 7 malignant and 7 doubtful tumours were distributed as in Table XXVII.

Of the 7 malignant tumours only 1 was considered to have a reasonable chance of cure when first seen. All the doubtful tumours were however thought to have a reasonable prospect of cure even if they proved malignant.

TABLE XXVII

MALIGNANT AND DOUBTFUL TUMOURS

	Children and Adolescents	Male 20 ≤ 45	Female 20 ≤ 45	Male > 45	Female > 45
Corpus Uteri	-	-	5	-	1
Cervix Uteri	-	-	1	-	-
Rectum	-	1	-	-	1
? Burkett's Tumour	1	-	-	-	-
Others	1	2	1	-	-
Total	2	3	7	-	2

Congestive Cardiac Failure

Only 10 patients with this disorder were recorded out of 1964 adults (0.05 %). This compares with 0.55 % recorded in Logan and Cushion's study.

The diagnosis was not a precise one since no attempt was made to determine the site or origin of the cardiac pathology. It is possible that at least some of the patients suffered from the subendomyocardial fibrosis first described by Bedford and Konstam.[91] If the association of loa-loal infestation with this condition is a causative one, as has been tentatively suggested by Gray,[92] then in the Calabar area where loa loa is endemic, one could expect some of the ten to have this aetiology. Precise diagnosis of subendomyocardial fibrosis is however, not possible in the conditions of general practice in Nigeria. No history of rheumatic fever was obtained in any of the ten cardiac cases.

Upper Respiratory Tract Infection

As would be expected, the prevalence of this condition is very low in this humid tropical climate. Only 89 patients (2.7 %) suffered from rhinitis, sinusitis, pharyngitis, tonsillitis or laryngitis. This compares with 18.0 % in Logan and Cushion's study of British practices.

Diabetes

Only three adults were diagnosed as having diabetes mellitus. However, remembering the findings of Shaper[93] and Haddock[94] in East Africa, and of Keeley[94] in South Africa, it is very likely that this number represents only a small proportion of the total suffering from this condition. The prevalence of obesity in women (Table XVII page 62) in Calabar increases the probable correctness of this hypothesis. Tulloch[96] has underlined the extreme paucity of reliable prevalence figures for diabetes in tropical countries, especially Africa, and it is a matter for retrospective regret that the writer did nothing at the time to investigate the size of the problem. Few conditions are more amenable to simple general practitioner research in Nigeria than diabetes mellitus: the submerged part of the iceberg is likely to be proportionately even greater than the undiscovered 50% mentioned by Last.[97] Routine urine-testing by the practitioner of the groups most at risk would assuredly uncover much of this hidden disease and prevent its more serious consequences.

?Amoebiasis

This diagnostic label referred only to hepatic amoebiasis. No laboratory confirmation was available and the tentative diagnosis was

therefore based on three clinical findings: a history of diarrhoea with or without abdominal colic, an enlarged tender liver, and pyrexia. These criteria approximate closely to three of those advocated by Lamont and Poole[98] in the absence of laboratory facilities.

Thirty-eight patients were given this tentative label. It is obvious that on the one hand not all cases that fulfilled these criteria were in fact amoebic disease; on the other hand amoebiasis without hepatic involvement could not in the circumstances be diagnosed at all. Though anti-amoebic treatment was given to all cases so labelled, it was not possible to follow them up and assess the response to therapy, which was the fourth of Lamont and Poole's criteria.

The foregoing part has been devoted largely to the description in some detail of the disease pattern of the general practice clinic in Calabar. It might be considered that too much space has been occupied by a factual report. But Logan and Cushion,[99] to whose work reference has many times been made, have as their opinion: "The G.P. is, in many respects well placed to provide morbidity statistics from his routine clinical note-taking. He sees most diseases at some stage or another, except for very minor conditions which do not cause disability. For the middle range of disease he is, indeed, the only person who can give reliable information, for many diseases are rarely seen in hospital".

If this is true in Britain it has certainly no less relevance in Africa. And yet, in West Africa at least, G.P. morbidity statistics are non-existent. This lacuna is therefore the principal

justification for the consideration of the various diagnoses in such detail, despite the manifest, but inevitable, imperfection of both the diagnoses and of the records on which they were based. Moreover, the writer believes that each piece of local information contributes to the growth of science as a whole, and therefore offers no further apologies for the foregoing analysis.

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Part II: THE GENERAL PRACTITIONER'S WORK IN NIGERIA TODAY: ACTUALITY AND POTENTIAL

In the introduction to this thesis it was stated that curative activities overwhelmed the preventive in general practice in Nigeria, as in other countries at a similar stage of economic and medical development. In the preceding part some indication has been given of the disease pattern the practitioner was called upon to deal with.

This part now deals with what appear to be the present-day curative possibilities in these circumstances. It does not purport to be a treatise on the therapy of the various conditions encountered but it does attempt to evaluate the likelihood of success of treatment in the prevailing economic and social circumstances.

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CHAPTER 6

FACTORS INFLUENCING THE NIGERIAN G.P.'s POTENTIAL

As would be the case in Britain most of the patients attending such a general practice suffered from conditions that, theoretically at least, could be adequately and fully treated there. In Nigeria two major factors principally determine whether adequate treatment is possible or not.

The first might be called the "medical competence factor" and has already been mentioned by implication at least, in connection with various diagnoses. It includes not only the unassessable personal competence of the individual doctor, and the standard of his equipment, but also the degree of availability of other opinions, and the accessibility of hospital diagnostic facilities. This factor is therefore involved mainly in adequate diagnosis.

The second is the economic factor. Even if a disease is adequately diagnosed its treatment by a general practitioner may be quite impossible because of economic conditions at a family or community level.

These two factors demand consideration in some detail, but first a word about premises and equipment.

The equipment of the general practitioner need not be a bar to competent diagnosis. A list of equipment held in this clinic will be found in Appendix B and this corresponds closely to the standard suggested by Pinsent[1]. Nor should there be any difficulty with regard to suitability of premises, since the Nigerian governments concerned insist on a relatively high standard for clinic premises before they can be registered. It is possible therefore that the majority of Nigerian G.P.'s possess already the standard of facilities at least as good as that put forward by Pinsent (op.cit.) (minus the aquarium[1]) and Adams.[2] This is all the more probable since a large proportion of private doctors have the equipment and premises necessary for operations such as herniotomy and dilation and curettage.

"Medical Competence Factor"

It ought to be possible within a comparatively short time to ensure that this factor is not a deterrent to adequate diagnosis, but

it must be admitted that at present in the vast majority of general practices in Nigeria the standard of diagnosis falls woefully short of the minimum required for specific, adequate and continued treatment of many of the disease conditions that present to these practices. This is a sweeping statement and, though it is perhaps a subjective opinion incapable of support by concrete evidence, its verity would not be disputed by any who have experience in this field.

No denigration of the Nigerian G.P. is implied. He is innately no less able than his European counterpart, and he has undergone a no less rigorous training, whether it be in Africa, Europe or America, but he labours under a number of severe handicaps almost unknown nowadays in economically developed countries. His undergraduate training is orientated largely toward "hospital medicine" and when he decides to enter general practice no period of apprenticeship or assistantship and no form of postgraduate training are available to him. Once established in general practice, no refresher courses are open to him, even if he could spare the time to attend them. He is more isolated, not only from hospital and public health doctors, but from his general practitioner colleagues, than any G.P. even in the remoter islands of Scotland. As a general rule his only opportunity of keeping up-to-date is by irregular visitations from not wholly disinterested representatives of pharmaceutical firms. Finally, he is exposed to temptations which indeed exist in Britain, but are there kept in check by closer contacts with colleagues, a more informed clientèle and a traditional "professional conscience"; in Nigeria it is all too easy to succumb.

Isolation has been mentioned. One of its corollaries is the unavailability of a second opinion in cases of doubt. But even where

available, the habit of calling in a colleague for assistance in diagnosis is not yet established.

Increasing numbers of general practitioners may do much to ameliorate the above situation, but in connection with the availability of hospital facilities such increase is liable to react in the opposite direction. As seen in Table VII, page 33 above, 14.1 % of the total of 3332 patients attending the clinic were considered to require hospital investigation, mostly of a laboratory or radiological nature, and a further 7.9 % required admission to hospital. (See footnote). Moreover, a further 20.6 % of patients would have been referred for investigation (mostly haemoglobin/P.C.V. or examination for malaria parasites) if laboratory facilities had been freely available. It is therefore a reasonable presumption that a general practice in Nigeria, if it is to offer to its patients a standard of service equivalent to that possible in Britain, must inevitably be even more dependent on hospital services than its British counterpart. This is only to be expected, not only in view of the different disease pattern, but because of lack of facilities such as E.C.G., home nursing help and domiciliary consultations which Fry[5] mentions. In 1960 many general practitioners in Nigeria had no possible access to hospital

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Footnote: It is a pity that, since the population from which these people came was an unknown quantity, it is impossible to make a direct comparison with such British figures for laboratory referrals or uses of hospital facilities as those of Duncan[3] or Morrison[4] respectively. Neither can a reasonable comparison be made on the basis of diagnosis, with percentage referrals such as those quoted by Fry[5], since the number in each diagnostic group was too small for any valid conclusions to be drawn.

services; in other areas the hospitals were able to provide diagnostic facilities only at a cost beyond reach of the average patient; and free use by general practitioners of even limited facilities are very rare indeed.

The nett result of all these adverse factors is that, though many of them can be resolved without undue difficulty, at present in all but the most favourable circumstances, the competence of the Nigerian G.P. to diagnose, and therefore treat adequately, must be severely curtailed.

Economic Factor

Though economies are deeply involved in the provision of hospital and other services just discussed, it is in relation to drug treatment of individual general practice patients that financial difficulties can most usefully be discussed.

In Nigeria today drugs are provided free for government hospital in-patients; out-patients attending the same hospitals may also receive their drugs gratis, or at a nominal cost, but if the state of the local hospital finances is low the patients may have to purchase the drugs from a commercial drug store. Patients attending mission medical units (which receive government grants) may, in cases of necessity, be treated free, otherwise they pay fees on a scale dependent on their own ability to pay and on the individual mission policy in the area. General practitioners, with few exceptions, receive no financial assistance from local or central government sources. Their patients must therefore pay not only the doctors' fees but the whole cost of the drugs prescribed, since there is as yet no general health insurance scheme, either organised by the State, as in U.K., or by private insurance companies as in U.S.A.

The cost of many modern drugs is quite beyond the means of the ordinary Nigerian farmer or unskilled workman. Even at cost price to the doctor, in 1960 one capsule of tetracycline cost 2/3d. in Nigeria, and the price from a pharmacist might well exceed a day's income. Small wonder therefore that if a general practitioner gave a prescription for such drugs they were seldom used as directed. Either they were not obtained at all from the pharmacy; or only a fraction of the quantity prescribed was bought; or all the drugs were bought, but a proportion re-sold in the market. The latter courses contributed in no small measure to the development of drug resistance, especially to the Sulphonamides which could, in 1960, be bought in every large market in Eastern Nigeria. There is little doubt that in future the same problem will arise with the oral antibiotics. Certainly, most drugs in common usage are not as costly as tetracycline, but on the other hand many conditions such as hypertension, tuberculosis, epilepsy and psychiatric conditions, require prolonged treatment with a high total expenditure on drugs.

Other Factors

Adeniyi-Jones[6] and Kark[7] have mentioned other factors influencing the quality of the service that a general practitioner can offer to the community, notably the influence of so-called "native doctors" and of tradition generally. In the last resort however, the general practitioner in Nigeria, much more so even than in Britain, will be judged by his results - the dramatic disappearance of yaws lesions after one injection of penicillin, or the rapid response of a severe malaria to intramuscular chloroquine. If the diagnostic and economic snags mentioned above can be surmounted, and if he is a good doctor, he will have no lack of patients and will

be able in no small measure to contribute to the good health of the community.

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An attempt has been made to outline an overall picture of the possibilities and limitations of the private practitioner's ability to give adequate treatment. The factors mentioned operate in widely differing degrees in relation to diverse types of patients and different illnesses, and it may be useful to particularise for some specific diseases, especially in regard to the economic factor.

CHAPTER 7

THE GENERAL PRACTITIONER'S POTENTIAL WITH REFERENCE TO SOME SPECIFIC DISEASES

Tuberculosis

This diagnostic group, though it forms an almost insignificant percentage (0.66 %) of the total number of patients, exemplifies many aspects of the general practitioner's work and of his difficulties.

No problem, unless it be that of nutrition, is more important in tropical underdeveloped countries to-day, since tuberculosis appears to be increasing in many areas[8,9] and its control is of great and urgent public health significance. It is therefore imperative that at least the private practitioner should have facilities for accurate diagnosis of the disease especially in its pulmonary form, the most essential being easy access to the nearest hospital for sputum and X-ray examination.

Valid arguments may be raised against the free use by general practitioners of hospital facilities, for example, for the diagnosis of malaria, on the grounds of the consequent inundation of inadequately staffed laboratories, and of cost to the hospital services. The case for unrestricted use without payment for the diagnosis of tuberculosis is however very strong. The number of laboratory examinations required would comprise such a small fraction of the laboratory's work that there would be no danger of overloading; this is particularly so since in most circumstances the initial treatment of diagnosed cases of tuberculosis would be the province of the government hospital services, both because of the public health implications of the

disease and of the economic difficulties of private treatment. Sensitivity tests are not at present a practical possibility in most areas in Nigeria.

The tuberculosis patients attending this clinic were those who, for one reason or another, were unwilling to go to the hospital for treatment. This is not an uncommon situation in Nigeria, and it is probable therefore that all sizable general practice clinics include among their clientele a proportion of cases of acute pulmonary tuberculosis who should perhaps more appropriately be treated by government or mission agencies.

The standard treatment of pulmonary tuberculosis in this clinic was 12 grams P.A.S. plus 300 mgs. isoniazide daily. This compares with the 400 mgm. isoniazide daily without P.A.S. suggested by Fox.[10] No streptomycin was used. The cost price to the doctor, and therefore the cheapest possible price to the patients, of these drugs was about 7/6d. weekly. Since at best these patients were out of work for three months, without any income or insurance unless they were in the salaried (not daily-paid) staff of government or large firms; and since, even when at work the basic labourer's wage in Calabar was at that time 5/-d. per day, it is obvious that, for the majority, unsubsidised treatment on this régime by a private practitioner is not practicable, unless the doctor is prepared to dispense the drugs at a loss. Treatment with isoniazide alone is cheap, and well within the ability of most patients. Its efficacy is however, questioned by Koch[11] and others.

With regard to the prevention and control of tuberculosis the private practitioner is often in a much better position to trace family contacts and investigate home circumstances than a hospital doctor, but this, mainly for economic reasons, is not at present practicable.

Gonorrhoea

Though to a lesser degree than tuberculosis the diagnosis and treatment of this condition requires access to laboratory services. Such access is becoming more and more vital for two reasons. First, increase in venereal disease appears to be an almost inevitable concomitant of urbanisation in underdeveloped countries to-day,[12,13] though Mills[14] did not find this to be true in Siera Leone. In Calabar gonorrhoea rather than syphilis is at present very much the commonest of the venereal diseases and is therefore discussed here, but access to laboratory services is, of course, equally essential for the diagnosis and treatment of other venereal diseases. Secondly, while penicillin-resistant gonococci seemed to be rare in this area (judged solely by the response to treatment since sensitivity tests were not available) recent reports from other countries[15,16] suggest that this happy state of affairs will not continue indefinitely. The assistance of laboratory services is therefore likely to be essential for determination of drug-resistance in the future. A final, though at present less important consideration is the medico-legal aspect. In 1960 it was rare in this area that medical evidence was called for the defence in cases of rape or indecent assault, and a single doctor's opinion as to the presence of gonorrhoea was rarely challenged. It can only be a question of time before incontrovertible laboratory proof is required.

Obviously these points apply with even more force to gonorrhoea in the female.

The economic factor in the treatment of gonorrhoea is of little importance since the routine treatment used (three consecutive doses of 1.25 mega units of mixed penicillin) cost only 5/3d.

Malaria

It was not considered practicable, as has been stated, that every suspected case of malaria should have a blood film taken. This would not only have imposed an intolerable burden on the laboratory services - if indeed they had agreed to co-operate - but such a procedure would not necessarily be indicated medically. Patients with fever attending a doctor naturally expect prompt alleviation of their symptoms and, if malaria is diagnosed on clinical grounds, then immediate antimalarial treatment without waiting for laboratory confirmation, is the obvious and desirable course, especially since the large majority of patients with fever attend a clinic or out-patient department once only. This course of action, though puristically less desirable, is now recognised by Adams and Maegraith[17] as the only realistic procedure in the circumstances.

The standard of antimalarial treatment used for adults was chloroquine sulphate: 600 mgm. of base in one dose, followed by 300 mgm. later the same day, followed by 450 mgm. daily for three days. This is the same dosage as that recommended by Covell et al.[18] but continued for one day longer. The cost of such a four-day course was 2/2d. Single-dose oral amodiaquine or chloroquine recommended by some authors[19,20] was never used since it was not felt to be sufficiently reliable in this area where falciparum infection is hyperendemic.

In cases of acutely ill patients intramuscular chloroquine was used. For young children the dose of 5 mgm. base per Kg. body-weight was that recommended by Jelliffe and Jelliffe.[21] Less severely ill children were given either chloroquine in syrup form, which was expensive, or quinine bihydrochloride solution. This latter, though admittedly old-fashioned, was cheap and effective, and has been given

a qualified blessing by modern clinicians such as Adams and Maegraith.[22]

There remained a small proportion of patients whose symptoms failed to respond to such treatment and for these, laboratory confirmation of diagnosis was essential but not always possible.

None of the patients with the exception of the very small numbers of expatriates, were in the habit of taking regular antimalarial supressives.

Though laboratory confirmation was lacking and no follow-up was possible, it may reasonably be assumed that for all but a tiny minority of cases, the treatment of clinically diagnosed malaria is well within the competence of the Nigerian G.P. and is economically feasible.

Malnutrition

Isolated ariboflavinosis can be easily, quickly and cheaply treated, but severe protein malnutrition, especially in young children is the most difficult problem met with in general practice in Nigeria. All cases of kwashiorkor or of severe general malnutrition-al deficiency ought certainly to be admitted to hospital. With all such patients here recorded, the strongest possible arguments were used to effect their admission, but for one reason or another a considerable proportion could not, or would not, avail themselves of in-patient hospital treatment, and had therefore to be treated as well as could be as out-patients. It is likely that this unfortunate situation is common throughout Nigeria since paediatric beds, which are in any case grossly inadequate in number, tend to be occupied for the most part by those suffering from acute diseases, the cure of which is more rapid and spectacular.

The cure of established malnutrition, especially protein malnutrition presents a number of problems which are very difficult to resolve in general practice;[23] there are no 'magic drugs' which offer

When the diet is poor in protein

AMAMA

makes it rich

For the very real problem of protein malnutrition in West Africa, Glaxo have produced AMAMA, a protein rich food which is acceptable, palatable and low in cost. With its protein, balanced amounts of minerals, trace elements and vitamins, it ensures complete nourishment when *added* to children's food everyday. Amama is a product of Glaxo research and unrivalled nutritional [illegible] which has such famous foods as Ostermilk, Farex, Casilan and Complan to its credit.

[illegible] a supplement [illegible] to supply the needs of one child [illegible] costing about 3d. a day.

[illegible]

THE AMAMA FORMULA

	per 100 grams approx.	per ounce approx.		per 100 grams approx.	per ounce approx.
Protein	51 grams	14.5 grams	Magnesium	210 mg	60 mg
Fat	5 grams	1.4 grams	Copper	3.5 mg	1 mg
Carbohydrate	32 grams	9.1 grams	Vitamin A	5300 units	1500 units
Calcium	680 mg	250 mg	Vitamin B_1	2.1 mg	0.6 mg
Phosphorus	490 mg	140 mg	Riboflavine	2.1 mg	0.6 mg
Sodium	700 mg	200 mg	Nicotinic Acid	17.5 mg	5 mg
Chloride (as Cl)	1050 mg	300 mg	Vitamin B_{12}	4.5 micrograms	1 microgram
Potassium	980 mg	280 mg			
Iodine	880 micrograms	250 micrograms	Vitamin D	1400 units	400 units
Iron	70 mg	20 mg	Calorific Value	354	95

Fig 13.

immediate relief, yet this is nearly always expected by the parents. It is seldom appreciated by them that the condition can be remedied primarily by dietary supplementation, and that progress is likely to be very slow indeed. The tendency, therefore, is for these children to be over-medicated if not by the doctor, then by the parents themselves. Good advice regarding feeding, especially when it may interfere with long-established local custom, is no more palatable to the mother than the skim-milk powder or other source of protein is to the child. Moreover, such additives are costly if not provided by national or international agencies, and such provision seldom percolates as far as the general practitioner. Finally, these children are frequently suffering from other conditions that have either helped to precipitate malnutrition or have found ingress through the lowered defences of the undernourished child. Malaria, anklostomiasis, ascariasis and anaemia are often present and it may be very difficult to decide when one may dare to treat these conditions in the presence of severe kwashiorkor. Any oral drug may precipitate fatal diarrhoea or vomiting, while in the presence of skin sepsis and devitalised tissue, injections are often hazardous. And yet the presence of any disease conditions untreated will militate against the recovery of a malnourished child.

In this practice skim milk powder was not available and the treatment of protein malnutrition consisted in the first place of a locally-made mixed cereal and leguminous powder (Figure 13 facing); advice regarding feeding, and, since sepsis was present in the considerable majority of cases, injections of long-acting penicillin. Thereafter each case became an individual problem and concomitant disease was treated as soon as it was deemed safe to do so.[24]

Unfortunately, in the nature of such a general practice, there was no way of measuring the efficacy of treatment. The failure of a patient to continue to attend might be attributable to death, admission to hospital, loss of confidence by the parents in the doctor, or partial cure. The impression, and it could be no more than an impression, was that about half of the severely malnourished children would die, and that about half would survive at least the acute episode which brought them to the clinic. How lasting were likely to be the effects of advice on feeding, it was impossible to judge in the absence of a follow-up.

The cost of treatment varied very widely according to the severity of the malnutrition and the presence of other complicating conditions. Once the acute stage was past, a gradual build-up of protein could be cheaply achieved by means of the cereal/legume powder referred to above. This was available in the local markets. In the acute stages however, virtually all the treatment had to be given free. As has been noted, quick amelioration was expected and never occurred; it was essential that these children should be as closely supervised as was possible, and the only way to do this was to offer every inducement to the parents to bring the child at least weekly for surveillance and treatment. In nearly all cases, payment would have been an obstacle to such regular attendance.

Diarrhoea

Since it was impossible to examine the stool microscopically, treatment was empirical. There was also no possibility of giving immediate intravenous fluids as advised by Penido.[24] Children with severe diarrhoea were given a proprietary preparation of Kaolin, streptomycin and sulphaguanidine, and on the second visit if the

diarrhoea had cleared, as nearly always happened, an anthelminthic and an antimalarial were administered. It is recognised that this is blunderbuss therapy and much more costly than specific treatment had a specific diagnosis been possible, but it is difficult to see what else could be done in like circumstances. In addition, simple advice on hygiene was given to the mother.

The average cost of such treatment, spread over two or three visits, was 10/6d.

Adults with diarrhoea, of whom there were only 26 cases, were treated with a four-day course of sulphadimidine unless there were clinical grounds for suspecting amoebiasis, malaria or other conditions of possible aetiological significance. In no type of case was the lack of laboratory facilities more keenly felt than in the attempted treatment of adult diarrhoea.

Hypertension

Here, the 'medical competence factor' is of comparatively minor importance, but the economic factor is such that, in severe cases, efficient treatment by a private practitioner is almost impossible.

On the one hand the diagnosis is relatively easy, the equipment required is available in every general practitioner's consulting room, and there is no necessity in the majority of cases for either hospital facilities or specialist opinion. On the other hand the treatment must inevitably extend over months or years, and in severe cases the drugs required are so costly that they are beyond the resources of all but comparatively wealthy patients.

As has been stated (p. 71) all the patients recorded as hypertensives were actually suffering from symptoms referable to the

condition. They were all therefore treated with hypotensive drugs, the milder cases with a Rauwolfia preparation ('Raudixin') in doses of from 200 mgm. to 800 mgm. per day, and the more severe cases with Pempidine ('Tenormal') or Guanethidine sulphate ('Ismelin').

The average weekly cost for these drugs was about 20/-d. and this takes no account of the cost of sedative (usually meprobamate) and other drugs which were often prescribed in addition. The average total cost of drugs for these patients was therefore in the region of 25/-d. to 30/-d. per week, and they would have cost at least 50 % more if purchased from a retail pharmacy. Even in the present improved economic circumstances the weekly cost of drugs would swallow up the whole wages of a labourer in the town.

Subfertility

Though in the perhaps not very distant future an uncontrolled increase in population may well be a problem in Nigeria and in other parts of Tropical Africa,[25] at the moment subfertility in the individual is one of the most difficult conditions with which the G.P. has to deal.

The social and psychological consequences of the wife's alleged or real inability to bear children may be incalculable in a society in which so much importance is given to the possession of children, and at the same time the causes of sterility (male and female) are so common. Moreover, adoption as a solution is still very rarely used and one is repeatedly faced on the same day with the two problems which should be mutually soluble but are not - the woman who, because she is childless, is the unwilling cause of severe family stresses and strains and the child literally dying because of the loss of his mother.

Discovery of the underlying cause of the subfertility may be beyond the scope of general practice. Perhaps the general practitioner's most valuable contribution is to allocate the responsibility to the appropriate partner. If it is possible to obtain the co-operation of the husband and a laboratory it will be found that, in a large proportion of cases in which the wife has been blamed, the husband is in fact the 'culprit' as he may be suffering from azoospermia due to gonorrhoea, post parotitic testicular atrophy, etc. (According to Jeffcoate[26] it is likely that at least 30% of sterile unions in Britain are due to male factors). If the husband is infertile and if he can be convinced of this, then the social consequences to the marriage are likely to be much less serious than if the wife continues to be blamed. If the husband's semen is normal then it will be assumed, though not always correctly, that it is the wife who is subfertile. Few causes of female subfertility can be adequately treated by a general practitioner, but it should not be forgotten that even in urban societies like Calabar where chronic g.c., salpingitis and tubal blockage are common, in some cases the aetiology may be purely psychological.[27] It is perhaps worthy of note that in two cases of female subfertility in this series, both in somewhat sophisticated women, where treatment consisted solely of reassurance, advice and sedation, a successful pregnancy followed within the year.

In the conditions of Nigerian general practice tubal insufflation for the diagnosis of tubal blockage is in my opinion an unjustifiable and hazardous procedure. Indeed, notwithstanding the opinions expressed by Bourne and Claye[28] it is doubtful if appropriate conditions exist in all but a tiny minority of British practices.

Rheumatic Complaints

Though these do not constitute as big a proportion of the total patients in this clinic as in most U.K. practices, this group of diagnoses is just as varied both in aetiology and severity as it is in Britain. One has the impression, and it is only an impression, that these conditions are on the average more disabling than in Britain, possibly owing to the fact that in Britain rheumatism may be used on N.H.S. certificates to cover many mild conditions,[29] which in Nigeria would not bring the patient to the doctor.

The majority of the patients - 252 out of 283 (89.0 %) - labelled as "rheumatic" were suffering from muscular rheumatism, usually of the back or of the arms, and this was generally treated successfully with a salicylate and a rubefacient. A few cases were resistant to this therapy and had to be referred to hospital for X-ray or laboratory examination to exclude bony change, yaws, malaria, gonorrhoea or other conditions of possible aetiological significance.

The number of patients with confirmed osteoarthritis was 31, consisting of 21 males and 10 females, 18 of them over the presumptive age of 45. The principal joints affected were the hip and knee. In the former, only palliative treatment was possible, though two cases were so severe that in the writer's opinion, arthroplasty or osteotomy would have been considered had the facilities been available. Though considerable doubt has been cast on its value[30] intra-articular cortisone was employed in a number of cases of osteoarthritis of the knee. As with so many chronic conditions in such a practice, assessment of the results of treatment was unfortunately impossible.

Deformities

Though the General Practitioner is often incapable of remedying deformities himself, it is of great importance that he should be able to recognise early those conditions which are in fact remediable. And in many cases of talipes equinovarus, genu varum and congenital dislocation of the hip, the G.P. can himself carry out remediable treatment provided the diagnosis is made early enough. If this may seem an unrealistic and unwarrantable proposition, it must be borne in mind that in the entire Nigerian Federation there are only two small orthopaedic hospitals; that most general hospitals are no better equipped to deal with these conditions than is a general practitioner; and that a substantial proportion of the deformed, crippled and almost helpless beggars seen in the streets of every town in Nigeria are suffering from the late effects of one of these congenital anomalies. Greater awareness in G.P. surgeries and hospital out-patient departments would prevent the majority of these effects.

Too frequently these cases are not brought to see a doctor until simple remedial treatment is no longer effective. However, six out of a total of 13 cases that were probably treatable under G.P. conditions were brought to the clinic early enough to have treatment carried out.

Three of these were talipes equino-varus treated initially by manipulation and immobilization in a Denis Browne splint - unfortunately they were not coincident as only one splint was available - followed by plaster of Paris.[31] Provided the immobilization was continued the outlook in these cases was good. Two early hip dislocations were treated by extension and plaster of Paris as recommended at that time by Mercer.[32] The prognosis in these cases was much less

optimistic, but with improved midwifery services the G.P. could treat adequately cases of dislocation diagnosed within a few days of birth by the manoeuvres described by Van Rosen[33] and Barlow[34]. The sixth case, of pes equinus, was easily and satisfactorily treated in plaster.

From the economic point of view the remedial treatment of such orthopaedic conditions in general practice is not easy. The cost of materials is indeed small, but repeated application of splints or plaster is a time-consuming and therefore costly process, since treatment will be prolonged over months or years. And yet, in the absence of adequate hospital facilities, few conditions seen in general practice are more worth the time spent in their treatment.

Economics Generally

Before summing-up the position with regard to the possibilities of private practice in Calabar area, three points must briefly be made, albeit with reluctance. They are so vital for a balanced appreciation of the general practitioner's position that, at the grave risk of motives being misunderstood, they cannot be side-stepped.

1. The writer was in receipt of an entirely adequate salary as a plantation medical officer and was not therefore in the least dependent on receipts from the practice. On the other hand, the salary was not such as permitted indefinite philanthropy, and, since it was hoped and expected that the budget would balance, a genuine attempt was made to collect adequate fees whenever possible. There is no doubt that in some cases more could have been collected than was actually the case, but it is firmly believed that in the vast majority of cases where the fee asked was not forthcoming, this was

because of actual inability to pay it. It should be reiterated here that ~~xxxxxxxxxx~~ the appropriate treatment prescribed was given whether or not an adequate fee was paid.

2. The cost of drugs prescribed and dispensed to a random sample of 200 of the patients was calculated. The average cost per patient/visit in this sample was 3/9d. This figure was based on the actual amount expended in buying the drugs at 'medical discount' prices, with nothing added for transport from the supplier 70 miles away. (Retail pharmacy costs would have naturally been much higher). The average amount collected for each patient/consultation in the sample was 4/8d. The average figure of 11d. per patient/consultation had therefore to be set against all overheads. Translated into terms of total budget for the year's operation this meant that about £300 should theoretically have paid for rent of house, payment of helpers, transport of drugs, electricity, travel to and from Calabar, renewal of equipment and many other smaller items. This it did not do and the result was a nett loss over the year of £397, and this without any financial assessment being made of the value of the time of the author or his wife.

3. It is a fact that in 1960-61 the standard wage for daily paid workers in the town was 5s. and in the nearby plantations 3/6d. It is also a fact that the daily cost of an adequate adult diet at that time was between 1s. and 1/4d. These figures were based on the cost of bulk supplies for adult hospital diets. No studies have been made of family budgets in this part of Africa and Mersadier's[35] estimate that about 80% of a labourer's wage in Senegal had to be expended in food has probably little relevance in Calabar. Nevertheless, the ratios between cost of drugs, cost of food and

daily wage are certainly pertinent to the discussion of the future of private practice. (Leitch)[36]

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The foregoing discussion of the general practitioner's ability to treat a selection of common disease conditions is probably sufficient to form the basis of three hypotheses:

1. The average Nigerian general practitioner is not at present in a position to treat adequately many common disease conditions which ought to be within his competence. The reasons for this inadequacy are largely beyond his control.

2. Even if the difficulties outlined under "medical competence" were resolved, adequate treatment is impossible in a large proportion of cases (especially among children), since many patients are unable to afford either the drugs or the doctor's fees, and the doctor, being wholly dependent on payment by patients, cannot afford to give treatment without such payment.

3. For the same economic reasons the general practitioner is not to any measurable extent involved in preventive medicine, either independently or in co-operation with his governmental colleagues. His potential as a health educator is similarly and for the same reasons, severely limited.

Such is the present position. In the following section the possible future of general practice will be discussed, and some methods indicated whereby the general practitioner might be enabled to perform a more vital role in the Nigerian community.

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PART III: THE FUTURE OF NIGERIAN GENERAL PRACTICE

CHAPTER 8

IS THERE A FUTURE FOR GENERAL PRACTICE IN NIGERIA?

At the beginning of this thesis (p.2) one of the questions posed was: "Can a developing country such as Nigeria, afford what may appear to some the luxury of uncontrolled and undirected general practice?"

If the skill of every doctor in the country is to be used to the best advantage of its inhabitants, then the answer to this question will be unequivocally in the negative. Nigeria, with about 1,400 doctors for approximately 50 million people (1 : 35,000) cannot allow her doctors freedom of choice of where to work, and liberty to charge fees determined wholly by themselves. In Latin America as a whole, 54 % of doctors minister to only 21 % of the inhabitants who live in cities,[1] and in particular in Peru, half of the total number of doctors in the country work in the capital where only 17 % of the population live.[2] These figures are quoted to indicate the likely picture in Nigeria if independent doctors are allowed free choice of their place of work.

It has, moreover, been made evident many times in the course of this thesis, that efficient treatment is often impossible if the patient has to bear the entire cost of it, and that prevention of disease lies at present almost wholly outside the scope of the general practitioner's work.

For these and other reasons which have also been previously

mentioned, continuance of the present almost complete lack of control or subsidy is inconceivable.

The only solution, medically speaking, would be for general practitioners, like most hospital and all public health doctors, to be fully employed by the state, as they are in the U.S.S.R., and some other Communist states. But by 1975, such is the rapid growth of medical education, it is anticipated that there will be 2000 additional doctors in Nigeria - an increase of 170 %[3] in 10 years. If these were wholly employed by the government this would mean not only an additional annual expenditure on salaries (assuming present rates) of £4,000,000, but also a very much larger sum required for provision of facilities - hospital beds, nursing and auxiliary staff, medical centres for rural areas, and so on. Where others, much better qualified than the writer, have failed so lamentably to estimate future expenditure on drugs in this country, it would be idle to attempt any such forecast in Nigeria, where practically no basic data are available. It is known that in 1960 the total expenditure on medical and health services for the Federal and three Regional Governments in Nigeria was £9,100,000, being 6 % of the total budget and about 5/-d. per head of population at the 1953 census.[4] Comparable figures for Tanganyika are 8.6 % and 4/-d.[5] for Sierra Leone 7.8 % and 10/-d.[6] and for Uganda 12.2 % and 10/-d.[7] respectively. It is suggested therefore, that on economic grounds alone the Nigerian Government is unlikely to consider bearing the cost of directly employing every doctor. Moreover, the democratic structure of the Federation is such that it is highly improbable that the compulsory employment of all doctors would be acceptable. Nigeria's evolution has, unlike those of Congo, Burma and even Ghana, been a peaceful one,*

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* Written before the events of January 1966.

and military or quasi-military necessity has not established a precedent for such compulsory enlistment. Again, it may reasonably be doubted whether the medical profession, now well organised in Nigeria, would agree to the prohibition of full-time private practice. In fact, the trend since 1951 has been towards extending private practice rather than towards limiting or abolishing it.

It would seem therefore, that general practice as such must, at any rate for the time being, continue. In Nigeria, as in Britain and in nearly all other countries, it can fulfil not only a demand but a real need, notwithstanding the fact that private practitioners can be neither employed nor deployed to best advantage in an under-doctored country.

If this postulate is accepted, three aspects need consideration: (a) the overall defects of present-day Nigerian general practice; (b) the type of practice that might be thought in the broadest terms to suit Nigerian environment; and (c) whether and to what extent it may be possible to encourage the development of general practice along these lines. It is recognised that there is no ideal solution apart perhaps from complete governmental employment, but, bearing this in mind, a number of possible partial remedies will be examined.

CHAPTER 9

SOME DEFECTS OF PRESENT-DAY NIGERIAN GENERAL PRACTICE

There can be no doubt that at the moment the contribution of the Nigerian general practitioner, either to the health and well-being of the people of the country as a whole, or to the sum of knowledge of the disease pattern in Nigeria, is infinitesimal. The reasons for this situation may be re-stated:

1. It has been shown that in the present circumstances honest unsubsidised private practice without payment by the patient of a substantial initial fee, is economically quite impossible for the doctor. If he charges a fee then in the first place the majority of children and of the poorer adults will be unable to obtain his services, as Stamm has noted in Jamaica.[8] Alternatively, such patients might attend once in the hope of a magical cure, but when this does not occur they would be unable to attend regularly. This situation would recur with monotonous regularity in, for example, children with severe malnutrition. The cost of treating children is not only relatively but absolutely greater than that for adults. In the random sample of 200 patients previously mentioned, the average cost of drugs for patients aged 0 - 5 was 5/1d. compared with 2/11d. for those patients over 20 years of age. In addition, the time taken to examine and treat a child is, on the average, considerably longer than that required for an adult, and this further increases the financial difficulty of treating children.

The first severe limitation of the work (and therefore of the value to the country) of the Nigerian general practitioner is,

therefore, that his practice is by and large limited to those in the upper income groups. It is true that within this very limited milieu the good general practitioner can perform a very useful function, but the fact remains that it is a very limited milieu; seen against a background of widespread poverty, malnutrition, tuberculosis, multiple infestations and ever-recurring malaria, the efficient treatment of a relatively few cases of obesity, hypertension, psychoneurosis and subfertility, pales into insignificance.

2. Further, having been forced by economic circumstances to deal almost exclusively with an upper class clientèle, and being dependent wholly on direct receipts from these patients, loss of the general practitioner's professional integrity is all to easy and all too frequent. The great scarcity of doctors and the consequent huge numbers of patients (200-300 in any one day) demanding treatment; the patients' faith in injections as a cure for all ills; the almost total absence in most areas of facilities for laboratory or X-ray confirmation of diagnosis; the ostracism by most of his colleagues and consultant visitors; all combine with the profit motive to produce a doctor who knows little and cares less about the health of the community as a whole, and indeed, even about modern trends in clinical diagnosis and therapy. Though for obvious reasons this viewpoint is seldom expressed in published work, it has been reported in Tanganyika[9] and, to the writer personally from Uganda[10], Ghana,[11] Rhodesia[12] and South Africa,[13] in relation to both African and European doctors. There are naturally honourable exceptions to this broad generalization.

3. Inevitably in the present circumstances, private practitioners congregate in the large towns and neglect rural areas. In this context it must be recognised that Nigeria, like all other tropical African countries, has still an agricultural economy, and that in 1953, only 9.2 % of the population lived in towns of more than 20,000 inhabitants.[14] Unfortunately, no published figures are available to support this opinion regarding concentration of general practitioners in the towns, but no-one with local knowledge would dispute it.

4. The general practitioner, even in Britain, where his community work is subsidised by the state, is occupied primarily with cure of established disease, to the virtual exclusion of preventive medicine. This viewpoint may be strongly contested by general practitioners in Britain, but whatever the true picture here may be, there is no doubt whatever that in Nigeria, however well orientated towards prevention private practitioners may be, neither the economic facts of life nor the climate of public opinion enables them to play any significant part in this sphere. And yet in such a rapidly developing country, both medical and economic arguments are clamant in emphasising prevention as at least an equal partner to cure. Perhaps some elaboration of this point is desirable. Probably no single condition encountered in general practice is of more long-term significance than under-nutrition in children. Established kwashiorkor is indeed very difficult to 'cure' even in hospital, most published statistics recording a mortality of between 20 % and 60 %.[15,16,17] In general practice the prospects are even bleaker: often skim milk powder is not available, parents may not appreciate

the concept of 'cure by diet', and in any event, unless the condition is rapidly fatal, treatment is prolonged and costly. Many children, however, are seen in the pre-kwashiorkor stage and with the patents of these and of healthy children, the general practitioner could make an invaluable contribution to the prevention of advanced protein malnutrition by advice and careful supervision, (Bassir)[18], but he does not. Advice means time, usually a great deal of time, and the demand for the services of any doctor is such that, even setting aside the question of payment, it is impracticable for the general practitioner to spend half an hour in dealing with a single patient.

So much for primary prevention by alteration of habits, of which the foregoing is but one of many examples.

Immunization is another sphere in which the general practitioner ought to be even more deeply involved than his British colleague. In Nigeria the difficulties of instituting and maintaining a scheme of preventive inoculations are greatly diminished owing to the fact that the people in general have illimitable faith in injections, and would therefore be eager to submit themselves and their children to most immunization procedures. Neither whooping cough nor tetanus are rare conditions in Nigeria. Both are dangerous conditions especially for the child, the former since the infection can be the basis for a destructive staphylococcal pneumonia, the latter since the prognosis in the neonatal period is so grave. Both are essentially preventible diseases. Yet, largely because of ignorance, during the whole year only 9 patients attended for prophylactic immunization, even though this clinic was the only one in the town where this was available. Diphtheria, though by general repute considered to be very rare, may well be dormant

or merely not diagnosed as suggested by Senécal,[19] and there is little doubt that estimation of poliomyelitis antibodies in children would show a significant titre in a large proportion, as indeed has been demonstrated by Debre[20] in some areas. Yet diphtheria and poliomyelitis immunization are, for all practical purposes, never carried out by Nigerian general practitioners.

In these, as in many other specific preventive measures, the general practitioner could be, as he often is in Britain, in the front line of the community's defence against ill-health. Yet, until the Nigerian doctor is reorientated in this direction; until the general public also is aware of the possibilities of preventive medicine; and until it becomes economically feasible for the general practitioner to play the part outlined, he will inevitably remain inactive in this sphere. Governmental control measures based on health education and immunization - to specify only two facets - will be incomplete to a corresponding degree.

5. The two other principal defects of Nigerian general practice have already been referred to: the general practitioner is intellectually if not physically isolated both from his general practitioner colleagues and from doctors working in hospital, public health or administration fields. In Nigeria however, this isolation appears to be solely a professional ostracism, and not the isolation from the community that has been noted in Britain (Gillie Report).[21] He has also a poor reputation professionally speaking, and while this is often, but not invariably, deserved, it is not, as has been indicated, surprising, nor can the responsibility for it be laid wholly at his door.

If the general practitioner's preoccupation appears to the outsider to be heavily concerned with financial gain and not enough with medical quality, this has, one hopes, been shown to be the fault of the system or lack of system, at least as much as that of the individual practitioner.

CHAPTER 10

GOOD GENERAL PRACTICE : NIGERIA

Before considering possible remedies for the shortcomings of Nigerian General Practice which have been dealt with briefly in the previous chapter, it behoves one to consider what the goal should be. What should be the responsibilities and attributes of the good General Practitioner in Nigeria? What facilities may he reasonably be expected to provide himself, and to what extent is he entitled to co-operation from hospital and public health authorities? Finally, what of the quality of his work, and his effect on the health of the community?

These questions have all been answered - though to be sure with a surprising lack of unanimity of opinion - in respect of British General Practice, in voluminous literature on the subject, but many of the answers require considerable modification before they can realistically be applied to Nigeria.

Responsibilities: The sphere of work of the general practitioner in Britain has been most fully dealt with in the "Gillie Report",[22] by Hadfield[23] and by Taylor.[24] One of the principal emphases in all these reports was upon the rôle of the general practitioner as a "Family Doctor". This concept, common to most countries of Northwestern Europe, is impossible to realise at present in Nigeria. A doctor/patient ratio in the region of 1 : 35,000 translated into local terms means anything from 100 to 400 patients per day for the individual general practitioner. In these circumstances it is not

surprising that domiciliary visits comprise an infinitesimal part of his practice, compared with the 20 % to 80 % of the British general practitioner's patient-contacts,[25] and he is therefore seldom in a position to deal with the family as a complete medical/social/economic unit. On the other hand, since his patients are not drawn from a predetermined panel or list, they can be (though they seldom are) more representative of the community as a whole, and the Nigerian doctor is in a position to be aware of and to deal with community medical problems to a greater degree than at least his urban counterpart in Britain.

Granted the shortcomings inevitable since he cannot be a Family Doctor, then the Nigerian general practitioner ought to be in a position to diagnose and treat adequately about 80 % of the patients who come to consult him (see p. 32 above). This figure corresponds closely to the proportion noted by Duncan in Britain.[26] But it should be appreciated that, because of the present dearth of consultant advice, and hospital laboratory or X-ray assistance, the Nigerian general practitioner must inevitably have a much heavier personal responsibility in the diagnosis and treatment of that proportion of his patients whose condition would normally demand a second opinion, either specialist or laboratory, for its classification.

However important diagnosis and curative medicine are, prevention should (especially at present when the shortage of doctors is so acute) forma major part of any clinical doctor's responsibilities. The general practitioner has great potential in preventive services in Nigeria as in the United Kingdom, and his expertise ought to be exploited along these lines. In primary prevention his responsibilities are diverse. He may be an immunizer, not only against smallpox - which is even at

present the only disease against which immunization is commonly provided - but against diphtheria, whooping cough and tetanus, the last perhaps including immunization of pregnant women as a protection against the neonatal form of the disease. In the near future the prophylactic inoculation against measles will be more important than any of these. With a death rate which may be as high as 25%[27], a complication rate in the region of 60%,[28] and an unmeasurable later aftermath of malnutrition and sepsis,[29] measles is now in the front rank of killing and maiming diseases of childhood in Africa, and mass immunization awaits only the development of a safer vaccine. Provided that a close liaison is developed with the public health authorities - and as has been stated this is almost non-existent at present - there is no reason why the general practitioner especially in rural areas, should not be an invaluable member of the team organised to combat communicable disease.

More vital however, than his role as an immuniser, is his influence as a health educator. Though he can afford so little time with each patient, and lengthy explanations of the advisability of this or that course of action are therefore impossible, he is often in a position to cure disease rapidly and spectacularly. His instructions therefore can carry much more authority than those of workers who, however skilled, are not seen to "work miracles". One would not therefore, agree with Bentzen's[31] opinion that "in the developing countries where the doctor/population ratio is about 1 to 10,000 to 50,000, the single doctor's role in this respect (health education) is negligible". His very scarcity gives his advice so much the greater weight, and in rapidly developing communities where the influential portion of the population, though small, is so eager to

learn, it is often necessary to convince only these progressive elements, and they will disseminate modern ideas of prevention to their less sophisticated brethren.

In no aspect of his work as a health educator is the general practitioner more influential than in dealing with infants - children under the age of about 5. And in this sphere of preventive paediatrics no facet is more critical than that of nutrition (Jelliffe[32]). For example, important as measles vaccination may be, it is recognised that these children who are precipitated by measles into kwashiorkor have in fact been balancing on the brink of acute protein malnutrition, probably for many months. The root of the problem is the child's nutritional state, and measles vaccination is an attractive proposition in the indirect prevention of kwashiorkor, largely because it is easily and rapidly implemented compared with the difficult and slow process of changing the food habits of the people. The same argument holds in relation to the prevention of tetanus, where routine active immunization may be logically recommended (p,128) as a quick effective measure against this serious disease problem, pending the success of the slow educative process regarding midwifery and child care. But it should be recognised that immunization and health education must go hand in hand.[33]

One additional sphere where the general practitioner's opinions can carry great influence is in the various voluntary services - Red Cross, youth organisations, etc., - already well established in Nigeria. Here he can, at very little cost to himself, wield considerable power as a health educator in what is usually the most advanced section of the community.

The <u>Facilities</u> which a good Nigerian general practitioner might

be expected to provide can be briefly stated. There are thosethat are expected and found in a good average British practice (Hadfield)[23] with a number of additions necessitated by the lack of many hospital services. An efficient means of confirming a diagnosis of anaemia, for example, is essential. For this, under African conditions, the necessary apparatus for measuring packed cell volume would appear to be most suitable.[34] A microscope, now seldom seen in British consulting rooms[35] would be sine qua non in Nigeria; more elaborate examinations than blood smears for malaria parasite detection and pus smears in suspected gonorrhoea would not be necessary. It may well be that, as suggested later, the Nigerian general practitioner should have facilities for performing a limited range of "intermediate" operations, particularly herniotomy, and for this an operating theatre and a few beds would of course, be necessary. Finally, since in nearly all areas, his practice will be a dispensing one, facilities must be provided for this. Fortunately, in this context, thanks to the rapid development of proprietary drugs, 'dispensing' now entails little more than handing out boxes of tablets or capsules.

Co-operation with other authorities is essential if the general practitioner is to give a service of the quality required. If a hospital is readily available then the practitioner should have free access to facilities such as X-rays and laboratory examinations which he cannot perform himself. Even a modest payment by the patient for such services is likely to deny their benefit to those who need them most. When asked for, a second opinion from a hospital colleague, even if the latter is not of specialist status, should also be readily available as a matter of course.

On the Public Health side, the local M.O.H., should at least provide immunization materials, but one would hope for a much wider basis of co-operation in this sphere. The good general practitioner will be involved not only in primary prevention of communicable disease, but also in school medical work, in industrial and plantation services, and perhaps even in advising on such matters as housing, food supplies, and other aspects of Public Health work.

Recent papers (Last[36,37]) have stressed both the importance of, and difficulties inherent in, evaluating the quality of a doctor's service to the community. It would not be appropriate here to discuss the application of methods of evaluation to the general practice situation in Nigeria. Objective evaluation of the quality of the practice of the "average" Nigerian general practitioner has not so far been attempted and would be fraught with even more difficulty than that of his counterpart in Britain. It can however, be said that there is no reason, innate or external, why the quality of the general practitioner himself in Africa should not be at least equal to that in Britain. His training in the two existing clinical medical schools in Nigeria does not differ materially from that available in British universities. Though in both countries there is an over-emphasis on curative hospital work in the undergraduate curriculum, while preventive medicine and general practice problems tend to be neglected, the recently introduced public health and social medicine curriculum in Ibadan should do much to redress this balance.[38] The very magnitude of the tasks facing the Nigerian general practitioner need not be a deterrent to good quality medicine, and his very scarcity increases his value to the community which he serves.

CHAPTER 11

LOOKING AHEAD

Some defects of present-day private practice in Nigeria have been briefly sketched and the part that a good Nigerian general practitioner might reasonably be expected to play in his community has been indicated. It has been repeatedly emphasised that expectation falls woefully short of reality, and some of the reasons for this shortfall have been mentioned. What of the remedies?

It is beyond the scope of this thesis to discuss in detail methods by which general practitioners may be integrated into a National Health Service in Nigeria or any other sub-Saharan African territory. Medina[39] and others[40] have reported on the overall position of the medical profession in Latin America, while Hogarth[41] and Schoeck[41a] have described in depth the methods of remuneration of general practitioners in a number of economically highly developed countries. Those studies have relevance to the future in Nigeria, but their detailed analysis and projection to another continent would appear to be work for a medical economist, and no such study relating to Tropical Africa has so far appeared. The present writer has therefore confined himself to broad consideration of possible remedies, descending to detail only where such detail appeared to require emphasis in the Nigerian milieu. Except on the most general terms, therefore, no attempt has been made to deal with the economics of the various suggestions.

It would appear that possible means of encouraging general practitioners to make a greater contribution to the medical care of

Nigeria fall into three broad categories:-

1. Remedies Within the Existing Framework

These remedies, which can be applied without altering the present framework of medical practice in the country, are in general easy of execution, but by themselves they will not go far in providing the whole solution to the problem.

a) Undergraduate training in Preventive Medicine:

The importance of training in preventive medicine as a prerequisite to the integration of general practitioners in the health service of a developing country, has been emphasised by the report of a W.H.O. Expert Committee.[42]

It is true that this report properly mentions, first, preventive medicine in undergraduate teaching, but it fails to emphasise this as a sine quâ non without which all other measures will be fruitless. Unless interest in preventive and social medicine is inculcated into the youth during his undergraduate career the chances of him becoming orientated in this direction are very remote. After he qualifies reorientation is difficult, especially in such a rapidly developing medical environment as is found in Nigeria, The same situation occurs perhaps to a lesser degree in this country. And in Nigeria it must be especially true with those who have chosen general practice as their careers.

Ibadan University[38] has recently recognised the vital necessity for orientation of undergraduate study towards prevention. Not only does the course in preventive and social medicine extend for 310 hours spread over 5 years, but it is treated in the final examinations as a subject of almost, if not quite, equal importance to the other two major subjects, internal medicine and surgery. Training in medicine

in relation to general practice is given as part of the above course.[43] Comparison with courses in other universities may not be wholly relevant, but it is at least of interest that in Edinburgh 60 undergraduate hours are spent in preventive (social) medicine, and though 18 Nigerians and 23 from other tropical African territories qualified in that university between 1947 and 1963, it was only in this latter year that the course has included, as a separate entity, discussion of the problems of underdeveloped countries.

Though undergraduate training must be the essential basis for reorientation of the medical profession, its significant results cannot be expected for many years unless other measures are taken.

b) Conscious therefore, of the severe limitations of postgraduate training in preventive medicine, some simple measures to promote the already qualified doctor's interest, may be of value.[44] The measures must be simple, partly because of absolute lack of resources, and partly since elaborate schemes of postgraduate training would be inappropriate in the present context with so few doctors able to benefit from them:-

i) In developing countries it should be accepted that one of the functions of the clinical teaching staff of the medical faculty of the universities is to go out into the country and spread the gospel of good modern medicine. This would benefit them as much as the doctors whom they would meet and advise and could be regarded as an essential part of their own postgraduate education. Moreover, on the principle that the most isolated, either physically or "spiritually", need most help, much of their time ought to be spent with doctors in

rural areas and with general practitioners.

Such travels are valuable out of all proportion to the expense and even time involved. No team, and little equipment are necessary; the stimulating effect of an hour's discussion of some of his many problems with an expert is of immeasurable benefit to the isolated doctor, not only technically but as a morale-booster, as the writer has found. At present such visits are nearly always confined to the staffs of the bigger hospitals who are in less need of them.

ii) Clinical teaching staff are thin on the ground and can spend only a very limited amount of time travelling. But regular meetings with colleagues in hospital and public health services can be of almost equal benefit to the general practitioner, and again this benefit is not only technical but psychological - if the general practitioner is to play his full part he must be made to feel that he is one of a team of equals.

Such meetings tend, as they perhaps do in this country, to be occasions for the presentation of unusual conditions in hospital in-patients. Valuable though such sessions may be, they should be supplemented by meetings conducted by the Health Department and by general practitioners, otherwise epidemiological, social and preventive aspects of disease do not receive their proper emphasis.

Moreover, as Kershaw has bluntly put it "the caste system in the medical profession often makes it far from easy for hospital doctors, public health doctors and general practitioners to work together as equals."[45] This is even more true in developing countries than in Britain, and unless joint meetings are arranged as outlined above, these "caste" differences are likely to be perpetuated.

Consideration of co-operation between all doctors at the local level leads on to the second essential preliminary step towards 'bringing in' the general practitioner:-

c) Co-operation between other services and general practitioners:

i) Attention has been drawn (p.105 ff.) to a number of diseases which cannot be adequately treated, or sometimes even diagnosed, without the full co-operation of hospital laboratory and/or X-ray services. Such conditions as gonorrhoea, pulmonary tuberculosis, the dysenteries, and malaria, to name only a few, are not only high-ranking in the general practitioner's morbidity statistics, but also constitute major public health problems. In all these diseases treatment of the individual case and follow-up of contacts are essential parts of any control measures. Also, these are often the types of conditions that are likely to be found in greater numbers in a general practitioner's waiting room than in hospitals. Yet in the present situation in Nigeria, accurate diagnosis by the general practitioner is impossible in the vast majority of cases, since laboratory and X-ray facilities are not made available to the private doctor, even when they are present in the same town.

No doubt laboratory services in hospital - though not X-ray facilities - are stretched to near capacity largely because of lack of staff. The position in Calabar hospital laboratory was that there were in 1960 four laboratory technicians, each of whom had undergone two years' training at the Eastern Regional Laboratory Technicians School. They served a hospital group with 211 beds and were so fully occupied in providing this service that the laboratory was unable to provide any regular service to outside practitioners. About 86 % of their work however, consisted of the following: Haemoglobin

estimation, examination of: blood for malaria parasites, faeces for ova, etc., smears for gonococci, and routine urine examinations.[46] These examinations could well be performed by technicians with at the most three months training, as has been shown previously by the writer.[47] There would no doubt be strong opposition to creation of such a cadre of second grade technicians, but any scheme for improved personal care services will founder if the laboratory services are not rapidly expanded to meet its needs. This has been recognised in a similar context - that of rural health centres and mobile units - by W.H.O.[48] If the integration of second grade technicians into the hospital service was not acceptable there might be less objection to their being attached to individual general practitioners, as are some state-employed health visitors in Britain.

ii) Liaison between the local health authority and the general practitioner is usually conspicuous by its absence. In rural areas especially, where the general practitioner may be the only source of medical assistance - though this is not a common situation - it is essential that he should be kept informed of the occurrence of nearby epidemics, of major disease eradication schemes, and of any other community public health measures which may be projected. The necessity and advantages of such liaison are too obvious to need further elaboration.

Still closer co-operation between the general practitioner and the community health authorities is not only possible but desirable. The general practitioner ought to be involved in personal preventive measures such as prophylactic inoculations; in health education campaigns, especially those directed to mothers and children; in formal instruction to schools and in medical inspection and treatment

of scholars, to name but a few activities. This, however, is not economically possible unless he is paid for these services, and provision for such payment at more than a nominal rate, together with the free supply of vaccines and drugs as necessary, should be a governmental responsibility.

d) Research by general practitioners has recently been emphasised by Huygen[49] as an aid to "overcoming that professional isolation.... inherent in a general practice", and by Pinsent[50] for its value in providing "new ideas, new stimuli and new knowledge". The writer believes very strongly that these sentiments are applicable not only to Western Europe but with even more force to economically developing countries. There are two grounds for this belief: The field of unrecorded knowledge of "short-term self-limiting illnesses, [and] the beginnings and development of more serious disease", mentioned by Pinsent in relation to Western Europe,[50] is still more vast in underdeveloped countries; and the need for active encouragement of the general practitioner to raise his professional standards is more pressing in countries where complete disappearance of these standards is all too easy. The snags and pitfalls of research in general practice are many. Simpson[51] has itemised them as lack of consecutive time; the plethora of material and the impossibility of picking and choosing the subject of research; the imprecision of diagnosis; and the relatively uncritical attitude which is inculcated into the general practitioner by his training and his experience. These pitfalls are likely to be even more hazardous in the Nigerian environment than in Britain; and yet the opportunities for and the value of general practice research are also so much the greater in

circumstances where there are such enormous gaps in our knowledge.

General practice research in Nigeria can be directed along one or more of several avenues.

1. Organisational studies on the lines of those described by Mair and Mair[52] would provide basic information useful to those responsible for organising governmental health services complementing the work of the general practitioner.

2. General morbidity and social studies such as those of Brotherston and Chave.[53]

3. Studies of incidence of particular conditions, be they diseases (Martin et al.)[54] or less specific socio-medical entities (McGregor).[55]

4. More elaborate research to investigate relationships between different factors in aetiology of disease, (for example, race and hypertension as suggested on p.73), or between different diseases (Sklaroff).[56]

Research along one or other of these lines would fulfil at least a double purpose, enlargement of the field of useful knowledge on the one hand, and much-needed stimulation of the general practitioner on the other. It would require active encouragement, organisation and supervision, all of which are completely lacking at present. The rewards, however, of research by or on behalf of general practitioners have been amply demonstrated in Britain and the initiation and maintenance of such schemes present no insuperable difficulty. Modification of techniques, for example in methods of sampling,[57] would be required to suit the somewhat more organisationally primitive conditions of Nigerian general practice.

The measures outlined above would certainly improve not only the

status but, much more important, the quality of service of the Nigerian practitioner. They are easy to implement since they involve little in the nature of a change of outlook, and their cost is small. But the degree of improvement likely to be caused by such measures is small by comparison with what might be done, and more radical steps involving a change of attitude and principle will require to be taken if a real solution to the problem is sought.

2. Remedies Requiring Changes of Principle, but still capable of being carried out without major re-organisation of the medical services, and in the present economic state of the country.

There are some, for example Bull,[58] who consider that for many years to come expenditure on health in general and on curative medicine in particular, should be kept to a minimum lest economic expansion be delayed. They consider that, if there is to be expenditure on expansion of health services it "should be mainly in the field of public health. Curative medicine is a luxury which at least must be dispersed sparingly."

However logical such arguments may be, and how attractive to the purist, they ignore three vital factors:

i) Disease and malnutrition present in the population to-day are an economic drain not only now but in the future when to-day's children are, or should be, the earners. Cure of existing disease, therefore, so far from hindering economic development, is an essential for its full fruition.

ii) Political and human pressures even in highly developed countries favour curative as opposed to preventive medicine. In this country the value of the government's contribution to health appears to be measured to a large extent by the scale of the hospital building programme, while preventive services languish in comparative penury. In Nigeria few buildings gain for their instigators such political kudos as new hospitals. This political point of view may be unfortunate, but it is the reality of to-day.

iii) To the general public in Nigeria, who are deeply conscious of their health needs, preventive medicine, if it is presented to them without a cure for their present ills, has little or no appeal. And, therefore, in many instances preventive measures which so often require the active co-operation of the individuals, fail in their object. To be accepted, changes in eating habits or other environmental factors nearly always require the reassurance of a demonstrable cure.

The argument in favour of the very close integration of preventive and curative medicine is continued in the following suggestions affecting the general practitioner. If the suggestions appear, like the 1965 proposals of British doctors, to be concerned principally with remuneration, it is because the writer believes that finance is the root cause of most of the bad general practice in Nigeria, and that unless there is some financial encouragement of both patient and doctor the prospects of good general practice in the country are remote.

As has been stated the average cost per prescription (see p.118) in the practice was 3/9d. If the drugs had had to be purchased

from a retail pharmacy the cost to the patient would have been very much higher. The latter event also assumes the accessibility of such a pharmacy, an assumption valid only in the larger towns.

In the present economic state of the average patient - the national average annual income is £25 to £29[59] - prolonged medication of any kind, and even effective short-term treatment of many conditions is not financially feasible in the bulk of the general practitioner's ill patients, especially if drugs have to be purchased from a pharmacy.

There are broadly two ways in which this difficulty can be resolved, and they are not mutually exclusive.

a) A direct subsidy could be given to either doctor or chemist towards the cost of the prolonged use of any drugs or vaccines. Apart from the cost of such subsidies, which, judging from experience in Britain, cannot be calculated in advance with any accuracy, there remains the very considerable danger that the trickle of dangerous drugs from authorised sources to the open market would become a flood. It is no secret that in 1960 Penicillin, Streptomycin, Chloramphenicol and Tetracycline could be bought freely in all the bigger markets in Eastern Nigeria, and that this fact may be responsible for a large part of the occurrence of antibiotic resistent organisms which have already been recorded in the country.[60,61]

Government subsidy towards the payment of these and other drugs, being impersonal and remote, would increase greatly the prescribing of them, and the possibility of leakage to unlicensed vendors.

b) A capital subsidy could be given to doctors willing to establish health centres with a small number of beds in rural under-doctored areas. Such subsidies could be made from central -

i.e. regional or federal - governmental funds, and this system has been used to a limited extent since 1957 in the Eastern Region of Nigeria. Alternatively, the funds could emanate from local councils. There are a large number of examples of this type of subsidy throughout the country.

Provided that the small number of attached beds is not allowed to develop into a large hospital occupying all of the doctor's time, this type of subsidy has a number of definite advantages.

i) Medical facilities are brought to rural areas where they are most required.

ii) The cost to the Government is much less than if the state itself were to build, equip and staff such centres. In the six years from 1957-58 to 1962-63 the Eastern Regional Government expended £23,444 on such grants to three general practitioners established in densely populated rural areas that hitherto had no medical facilities.[62] Had these centres been staffed by Government Medical Officers this sum would not even have covered their salaries.

iii) With some beds at his disposal the general practitioner is in a position to perform a limited range of surgical operations (such as the repair of herniae) that are remunerative out of all proportion to the cost to the practitioner. He could, therefore, afford to treat at least a proportion of those requiring his assistance but unable to pay for it. In Britain before the National Health Service, many surgeons were also general practitioners, and a similar cadre of general practitioner-surgeons might well be developed in Nigeria. The analogy between the two - the pre-1948 general practitioner surgeon in Britain and the private general practitioner in a rural

health centre in Nigeria is not complete - but there are some common factors, enough perhaps to offer the probability that in at least a proportion of selected cases such a subsidy would have the desired effect.

3. Solutions Entailing Radical Re-organisation of the entire health services of the country.

None of the foregoing suggestions provides a complete answer to the problem of the best use of the general practitioner in Nigeria. It is probable that at no single point of time can a complete answer be implemented. New attainments themselves create new goals and the ideal remains several steps, if not miles, ahead.

However, if (with the exception of the U.S.A. where there is a relatively adequate number of doctors per population) National Health Services in some form are deemed to be a necessity in nearly all the economically developed countries of the world, the need is more urgent in countries where the proportion of doctors is totally inadequate and where, therefore, deployment of the available resources is even more essential.

Under the old imperial and colonial regime the medical services of tropical territories were, in fact, national health services, at least in their latter years, even though in most cases they were rudimentary in form and mal-orientated according to present ideas. The fact that in most developing countries there has been a departure from this pattern of overall control is likely to be a temporary phase consequent upon the poor economic status of the countries and the rapidly growing number of doctors.

In the near or distant future, therefore, one would visualise not the abolition of general practice, but the full integration of general practitioners into a National Health Service. It is beyond the scope of this paper to speculate on the precise form of such a service, the method of remuneration of the general practitioners, or the time likely to elapse before such a change took place. So many different factors, medical, economic and political, will influence the picture.

The present (written before recent political changes) democratic federal system of government in Nigeria is likely to favour the gradual introduction of partial measures such as have been outlined above, followed perhaps by a fee-for-item service scheme such as is found in Sweden and elsewhere. Insurance organised privately or by the state would be another politically acceptable method in democratic Nigeria. On the other hand, if an authoritarian regime were to take over in Nigeria, a full-time salaried service, with complete control of general practitioners by the government, would appear to be the most likely outcome. Such National Health Services exist to-day in Burma[63] and U.S.S.R.,[64] among other countries.

But this is speculation; only one thing can be said with confidence regarding the future pattern of the medical services in Nigeria: a capitation fee system on the lines of the British National Health service is, in the light of present-day medical opinion, past history and hard economic facts, by far the least likely of all the possible permutations.

There is one further interesting possibility. Silver[65] and McKeown[66] have suggested that the logical development of general practice should be towards "patient-orientation" rather than "disease-

orientation". They visualise groups of general practitioners composed of obstetrician, paediatrician, general physician and geriatrician, each concerned with a particular age group, whether they require attention at home or in hospital. In Britain the introduction of such a revolutionary scheme is likely to be slow and imperfect except in virgin situations such as new towns (Morrison).[67] On the other hand, in Nigeria there is in many of the smaller towns the possibility of initiating such a concept. General practitioners with their own small hospitals exist (p. 6), sometimes subsidised by local or central government, and throughout the country many, if not most doctors are accustomed to looking after their patients throughout their entire illness, whether the treatment is given at home or in hospital. Extension of this principle along the lines proposed by McKeown would not be difficult.

Many other facets of medical development have been left untouched in this discussion: the place of the medical assistant and of the feldsher,[68] the latter found in modified form in the neighbouring Spanish island of Fernando Poo; the future of Rural Health Centres and Medical Field Units; the role of the Medical Officer of Health; priorities in research. All these, and many more, influence to a greater or lesser degree, the future of the general practitioner in Nigeria and in countries at a similar stage of economic and medical development.

But discussion of these though relevant, would involve discussion of the past, present and future of all branches of the medical profession, and, indeed, of the country as a whole. To do this is neither within the competence of the writer nor within the reasonable length of a thesis.

At the beginning of this thesis it was admitted that it might well be that satisfactory answers could not be given to the many questions which have been posed. It would be pleasant if this admission could be retracted, and the study tidily rounded off with a well-delineated conclusion. But this is not possible. Some idea of the work of the Nigerian general practitioner has been given, and therefore the first question (page 2) has been answered, if only in a somewhat parochial manner. A short (negative) answer to the second question - the fullest possible use of the general practitioner - has been substantiated.

But the questions of whether or not general practice should continue as part of the Nigerian medical scene, and if so, in what form, can have only a speculative answer.

It is probably true that there is a place for the general practitioner in the Nigeria of the future, though he will inevitably lose the independence which he at present possesses. Control in one form or another may not be inevitable, but if concentration of practitioners in the cities to the exclusion of the bulk of the rural areas is to be avoided, then control and direction is indeed essential. There is little doubt that in Nigeria such concentration in urban areas is even more pronounced than has been noted in South America.

With this loss of independence the general practitioner should gain pari passu an honourable, useful and respected place in the integral health services of the country, and furthermore, his position, though less attractive at first sight, would become more secure. These are the benefits to the general practitioner himself. The benefits to the people of the country would be immeasurably greater if, in the words of the Beveridge Report[69] "for every citizen there is [to be]

available whatever medical treatment he requires, in whatever form he requires it".

In this thesis the writer has endeavoured first to present a picture of an actual general practice as it existed in 1960-61, and then to demonstrate the potentialities of the general practitioner, present and future. It may appear that undue attention has been focussed upon the detailed disease pattern, but in the absence of a clear picture of the present, it is impossible to make any legitimate predictions or recommendations for the future. Twenty years ago Edge,[70] referring to the unmeasured mass of tropical sickness, wrote: "Local conditions favour the propagation of the causal agents.....of disease;.....if these evils are to be combatted successfully, certain basic facts concerning them must be recorded with precision". We are still a long way from the precise reporting which he visualised, so far indeed that even the imprecise and imperfect record of the disease pattern presented in the first part of this thesis may be of some value in illumining the darkness in this field. Presentation of such a record, blurred in outline and culled from an unknown population, would be an impertinence if it related to general practice in Britain.

With regard to the second part of the thesis the question might well be asked: What part can discussion of treatment schedules play in a treatise which lays no claim to being a clinical exposition? Yet it is difficult to see how one could consider the place of preventive medicine in this milieu, still less the whole future of general practice in Nigeria if the present cure-orientated situation with all its implications, medical, economic and ethical, were not analysed. And no firmer basis for such analysis seems possible

than to describe in some detail the actual steps taken to deal with the commonest problems encountered. While reorientation towards prevention must come, its acceptance will be slow, and will be sure only if, at least in the first phase, it is coupled with the practice of curative medicine.

No comprehensive plan for health services in Africa can leave out the General Practitioner. His potential and his responsibilities to-day are greater than ever before. He ought to be and could be an essential part, even the most vital component, of such services whether they be curative, preventive or health educative. But he will not be in a position to play this part unless there is a radical change in outlook, not only of the general practitioner body itself, but of the rest of the profession and of the governments concerned, for in under-doctored countries it is essential that the skill of every doctor should be used to the best advantage of the inhabitants. "By experience", says Roger Ascham, "we find out a short way after a long wandering".[71] This is the goal. It is hoped that this account based on one man's experience, will help others to find the short way.

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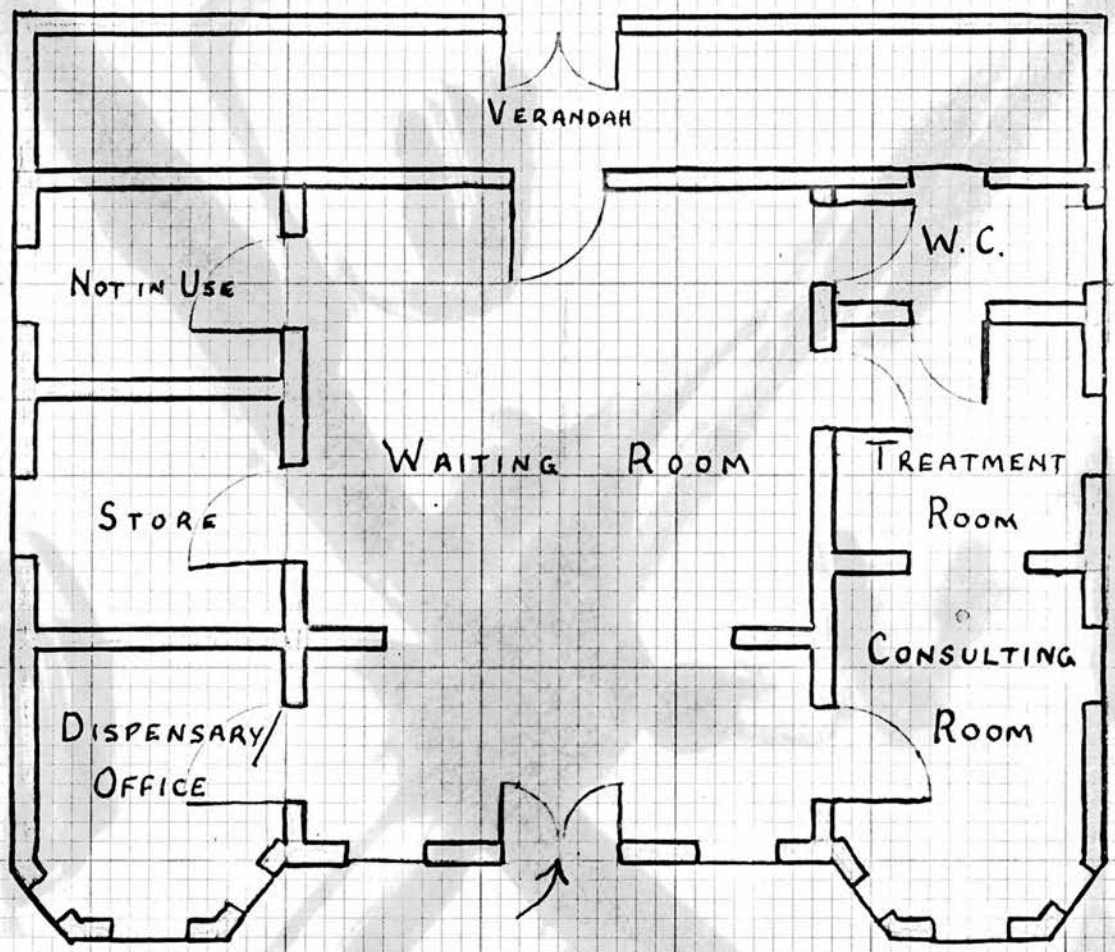
APPENDIX A



PLAN OF CLINIC

APPENDIX B

Equipment held in clinic - regarded as the minimum requirements

(a) For examination

- Examination couch
- Sphygmomanometer
- Haemoglobinometer
- Urine testing apparatus
- Auriscope and ophthalmoscope
- Percussion hammer
- Gloves
- Proctoscope
- 'Anglepoise' lamp
- Pencil torch

(b) For treatment

- Steriliser
- 2 ml. and 5 ml. syringes ad lib.
- Ear syringe
- Suture materials
- Aural and nasal forceps
- Bard-Parker blades and handles
- Spatulae
- Bandages and dressings
- Instrument trays
- Kidney dishes
- Dressing instruments

(c) For records

- Suitable cards and filing trays

APPENDIX C

List of drugs held in stock and dispensed during the year

(a) B.P., B.P.C. AND N.F. preparations

Tablets: Aspirin, Mag. Carb. Co., Digoxin, Codein Co., Phenobarbitone, Quinidine Sulphate, Ergometrine, Riboflavine, P.A.S., Ferr. Sulph., Stilboestrol, Isoniazid, Yeast, Cascara

Mixtures: Creta. Co., Mag. Trisilcat., Ferri. et Ammon. Cit., Quinine Bihydrochlor.

Capsules: Multivitamin

Ointments: Hydrarg. Ox. Flav., Sulphur, Methyl. Salicyl., Whitfield

Emulsions: Benzyl. Benzoat.

Injections: Ergometrine, Vitamin B. Complex, Riboflavine, Triple Antigen, Testosterone, Emetine HCl., Streptomycin, Nikethamide, Quinine and Urethane, Phenol in Almond Oil

(b) Proprietary Preparations

Antimalarials

'Nivaquine', 'Avlochlor', 'Malarex', - all chloraquine compounds

'Quinacrine' and 'Atabrine' - Mepacrine compounds

'Camoquine' - Amodiaquine

'Daraprim' - Pyrimethamine

'Paludrine' - Proguanil

'Darachlor' - Pyrimethamine + chloroquine

Antibiotics and Sulphonamides

'Distaquaine' and "Distaquaine VK' - Penicillin

'Tripdopen' - Benethamine, procaine and sodium penicillins

'Chloromycetin', 'Alficetyn' - Chloramphenicol

'Achromycin', 'Terramycin' - Tetracyclines

'Thalazole' - Phthalylsulphathiazole

'Sulphatriad' - Sulphathiazole, -diazine, -merazine

'Guanimycin', 'Stoptomex' - oral streptomycin and suplhonamide

'Midicel' and 'Madribon - long acting sulphonamides

Vitamins and Iron

'Radiostoleum' - Vitamin A and D

'Multivite' - multivitamin tablets

'Becosym', 'Belflavit' and 'Benerva' - B. Complex

'Distivit' - Vitamin B_{12}

'Imferon' - Intramuscular Iron

Antihelminthics

'Antipar' and 'Enttacyl' - Piperazine compounds

'Alcopar' - hookworm

'Vanquin - threadworm

Anthiphen - tapeworm

For various Gastro-intestinal Conditions

'Agarol' - for mild and recurrent constipation

'Anusol' and 'Scheriproct' - for haemorrhoids

'Almacarb' and 'Gelusil' - antacids

Eye, Ear, Nose and Throat Preparations

Albucid - eye drops

Neobacrin - eye ointment

Otrivine and Otamidyl - ear drops

Argotone - nasal spray

Zynocin and Dequadine lozenges

Hypotensives

'Raudixin' - Rauwolfia root

'Ismelin' and 'Ismelin-Navidex K' - Guanethidine

'Serpasil' - Reserpine

'Tenormal' - Pempidine

Antihistamines and Antispasmodics

'Anthisan' Mepyramine

'Phenergan - Promethazine

'Benadryl elixir' - Diphenhydramine

'Piriton' - Chlorpheniramine

'Franol' - Ephedrine, theophylline and phenobarbitone

Dermatological Preparations

'Anthical' - for prickly heat, etc.

'Tineafax', 'Teoquil', 'Jadit' - fungicides

'Dequadin' and 'Cetavlex' - for skin sepsis

'Combison', and 'Terra Cortril' - containing cortisone

'Tetmosol' - antiscabetic

'Grisovin' tablets - fungicide

Other Preparations

'Soneryl', 'Ooriden', 'Bidormal' - sedatives

'Equanil', 'Myanesin', 'Librium' - tranquillizers

Dinoestrol, Mepilin - hormones

Sonalgin - for insomnia due to pain

Direma, Salyrgan - diuretics

Nivembin, Embequin - Anti-amoebics

Dequadin suppositories

S.V.C. - for vaginal infections

Acetylarsan ampoules

Amama - vegetable protein powder

Betnelan - intra-articular cortisone

Planocaine - local anaesthetic

Avomine - anti-emetic

Preludin - for weight reduction

Metatone - tonic

Buscopan - dysmenorrhoea

Flagyl - trichomoniasis

Predasin - aspirin and predisone

APPENDIX D

TABLE OF PRESENTING COMPLAINTS IN 3332 PATIENTS

Ages	0 < 2		2 < 5		5 < 10		10 < 15		15 < 20		20 < 45M.		20 < 45 F		> 45 M		> 45 F		
	No.	% of 601	No.	% of 371	No.	% of 214	No.	% of 82	No.	% of 100	No.	% of 597	No.	% of 950	No.	% of 167	No.	% of 250	Total All ages
Fever	285	47.5	150	40.4	106	49.5	25	30.5	17	17	120	20.1	269	28.9	36	21.6	76	30	,1084
Diarrhoea	211	35.16	69	18.6	21	1.0	3	3.7	2	2	19	3.2	30	3.2	2	1.2	7	2.8	364
Fever & Diarrhoea	97	16.16	22	5.9	3	1.4	1.	1.2	0	0	4	0.7	9	0.9	1	0.6	4	1.6	141
Cough	176	29.3	99	26.7	53	24.8	13	15.9	3	3	33	5.5	29	3.1	8	4.8	14	5.6	428
Fever & Cough	96	16.0	36	9.7	7	3.3	5	6.1	1	1	9	1.5	17	1.8	2	1.2	6	2.4	179
Skin Complaints	82	13.66	68	18.3	31	14.5	14	14.7	7	7	76	12.7	48	5.1	10	6.0	7	2.8	343
Boils/Abscesses	58	9.66	27	7.3	9	4.2	3	3.7	2	2	21	3.6	20	2.1	4	2.4	3	1.2	147
Running Ear	14	2.3	23	6.2	5	2.4	3	3.7	0	0	10	1.7	1	0.1	1	0.6	4	1.6	61
Abdominal Pain	35	5.8	20	5.4	14	6.6	9	11.0	8	8	98	16.4	159	16.7	18	10.8	45	18.0	406
Weakness	30	5.0	17	4.6	3	1.4	3	3.7	0	0	26	4.4	56	5.9	13	7.8	23	9.2	171
Prolapse Anus	7	1.16	22	5.9	4	1.8	2	2.4	0	0	1	0.2	0	0	1	0.6	0	0	37
Sore mouth	18	3.0	17	4.6	2	0.9	1	1.2	0	0	6	1.0	9	0.9	2	1.2	0	0	55
Deformities	13	2.16	9	2.4	6	2.9	1	1.2	4	4	3	0.5	1	0.1	1	0.6	0	0	38
Loss of Weight	41	6.8	24	6.5	31	14.5	3	3.7	0	0	9	1.5	39	4.1	2	1.2	1	0.4	150
Injuries	6	1.0	13	3.5	11	5.2	2	2.4	4	4	14	2.4	9	0.9	1	0.6	1	0.4	61
Dysmenorrhoea	-	-	-	-	-	-	-	-	6	6	-	-	132	13.9	-	-	12	4.8	150
Sterility	-	-	-	-	-	-	-	-	1	1	-	-	136	14.3	-	-	7	2.8	144
Pregnancy	-	-	-	-	-	-	-	-	4	4	-	-	128	13.5	-	-	1	0.4	133
Other Gynaecological	-	-	-	-	-	-	-	-	1	1	-	-	257	27.1	-	-	45	18.0	303
"Rheumatism"	-	-	-	-	-	-	4	4.9	7	7	124	20.8	129	13.6	46	27.5	98	39.2	408
Impotence	-	-	-	-	-	-	-	-	-	-	37	6.2	-	-	11	6.6	-	-	48
Urethritis	-	-	-	-	-	-	1	1.2	1	1	38	6.3	-	-	8	4.8	-	-	48
Hernia	5	0.8	2	0.5	0	0	0	0	2	2	17	2.9	3	0.3	7	4.2	6	2.4	42
Psychological	0	0	0	0	1	0.5	2	2.4	8	8	29	4.8	25	2.6	1	0.6	3	1.2	69
Headache	0	0	1	0.3	1	0.5	1	1.2	2	2	21	3.6	27	2.8	13	7.8	29	11.6	95
Worms	16	2.66	7	1.9	2	0.9	2	2.4	1	1	0	0	5	0.5	1	0.6	0	0	34
Feeding Disorder	5	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Eye Complaints	9	1.5	9	2.4	5	2.4	2	2.4	13	13	30	5.0	34	3.6	23	13.8	20	8.0	145
Constipation	10	1.66	2	0.5	1	0.5	0	0	2	2	17	2.9	21	2.2	6	3.6	16	6.4	75
Fits	7	1.16	2	0.5	1	0.5	1	1.2	2	2	2	0.4	4	0.4	1	0.6	1	0.4	21
Vomiting	51	8.5	10	2.7	10	4.7	2	2.4	2	2	1	0.2	15	1.6	0	0	0	0	91
Others	77	12.8	51	13.7	26	12.1	26	31.7	25	25	165	27.8	169	17.8	77	46.1	80	32.0	696

0 = NIL. - = Not applicable.